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FORD'S NASSER IN DRIVER'S SEAT

Ford Motor Co. CEO Jacques Nasser (left) is determined to transform the world's second-largest automaker into the top "consumer company for automotive services." And he wants information technology to lead that change. Under his leadership, Ford has bought Europe's largest car repair chain. It acquired an auto parts recycler. And Nasser has appointed a new CIO, Jim Vest, who knows his mission: Get faster, and use technology to enhance Ford's relationship with its customers.

See Kathleen Melymuka's report, page 48.

SUN SHOOTS FOR THIN-CLIENT GLORY

Not just for Java anymore

BY STACY COLLETT AND STEWART DECK

Twice knocked down in the thin-client market but not out of contention, Sun Microsystems Inc. on Sept. 8 will unveil a new "information appliance" that sheds the Java-only mentality of its previous workstations.

The product is expected to be more robust than Sun's previous JavaStations and rely exclusively on Sun servers for their applications.

The biggest change for Sun, however, is that the appliance will run a variety of cross-platform applications, not just Java applications.

And Sun's pending purchase of software maker Star Division in Fremont, Calif., will provide the linchpin that makes its thin clients useful.

Star Division's office applications, called StarOffice, run on Windows, Unix, Solaris, Java and other platforms. And StarOffice is better than Java software at incorporating the formats of Microsoft Office applications like PowerPoint, Word and Excel.

Industry observers said software has always been a critical

Sun Clients, page 16

ONLINE SHOPPERS ON E-MAIL HOLD

Web merchants still take hours, days to respond

BY JULIA KING

If Labor Day is anything like Memorial Day, then online customer support is likely to be at the beach.

A few standouts excluded, companies doing big business online still have a long way to go to provide good customer service via e-mail.

Of 41 companies surveyed

Online Shoppers, page 16

COMPAQ SHUTS DOWN ALPHA/NT

Microsoft follows suit; Compaq will offer trade-ins, aid in moving to Intel servers

BY JAIKUMAR VIJAYAN

Compaq Computer Corp.'s decision to drop Windows NT development on Alpha will mean a forced migration to alternative platforms over the next two years for a small base of Alpha users.

It also turns the spotlight on Linux as the low-end operating system of choice on Alpha, with Compaq's Tru64 Unix and OpenVMS filling out the high end.

The NT pullback is likely to add to user concerns about long-term plans for Alpha, given Compaq's reliance on Intel-based servers and lack of volume Alpha server sales. Compaq has said Alpha is at the center of its enterprise server lineup and plans to migrate Tandem servers to Alpha chips.

- **Launched:** November 1992 by Digital Equipment Corp.
- **Current manufacturer:** Samsung Electronics
- **Operating systems supported:** Linux, Tru64 Unix and OpenVMS
- **Fastest-shipping Alpha processor:** 64-bit, 667-MHz 21264 chip
- **Future chips:** 700-, 733- and 833-MHz chips

The move — which came as a surprise to some users — was nevertheless inevitable given the low interest in NT on Alpha, users and analysts said. And it may actually lead to a greater emphasis on core technologies like OpenVMS and Unix on Alpha, they added.

Compaq late last week confirmed reports that it has decided to stop both 32- and 64-bit Windows NT development activity on Alpha. Earlier in the week, a company spokesman had stated that although Compaq was dropping 32-bit NT on Alpha, its commitment to 64-bit NT on Alpha remained as strong as ever.

The decision means Compaq will disband a 100-person NT development team in Bellevue, Wash., possibly resulting in layoffs, a Compaq spokesman said. But Compaq

Compaq, page 85

RELIABILITY.COM

THESE DAYS, MAJOR WEB SITE OUTAGES are headline news on CNN, which puts IT executives on the hot seat. They have to make bet-the-business decisions on which Web site architecture and technology will be reliable enough to handle unpredictable surges in traffic. Mainframes? Unix? Windows NT? Debates rage, but no one really knows which technologies will prove robust enough for high-volume e-commerce transactions, reports Carol Sliwa. *Report is on page 24.*

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SEND IN THE CLONES

In 1983, the business market for PCs got a healthy boost with Lotus 1-2-3, Microsoft's Word and Compaq's first IBM PC clone. Flashback, page 71

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"IT WAS ONE OF THOSE THINGS WHERE IT SOUNDS GREAT, BUT YOU DON'T KNOW EXACTLY WHAT THEY WERE SAYING."

JEFF SMITH, CIO ALLIEDSIGNAL, ON SAP'S ANNOUNCEMENT OF ITS MYSAP.COM WEB-COLLABORATION STRATEGY. SEE PAGE 8.

AT DEADLINE

Amazon Changes Privacy Policy

After hearing complaints from customers over privacy concerns, Amazon.com Inc. said it would leave it up to customers to participate in a new feature that tracks group purchases.

The Seattle-based online retailer said customers can exclude book, video and CD buys from the Purchase Circle plan they belong to.

Plan Set To Solve Web Name Disputes

The Internet Corporation for Assigned Names and Numbers (www.icannorg) approved a procedure for handling disputes over top-level domain names on the Web.

The mechanism allows for Internet addresses to be canceled or transferred to their proper owner when a blatant violation has taken place.

GM Spends $30M On New System

Cap Gemini Group has signed a $30 million contract to provide a new retail contract management and administration for General Motors Corp.'s finance and leasing division. The system will be rolled out in 33 countries in Europe, Latin America and the Asia-Pacific region and was designed to help develop purchasing, leasing and insurance plan options.

SEC Cites Firms On Y2K Reports

The Securities and Exchange Commission charged five investment advisers (Amervest Co., KMI Realty Advisors Inc., Huber Hogan Consulting Inc., Russon Financial Services Inc. and Robert Sears) and four transfer agents (Peachtree Stock Transfer, Robert J. Crain Jr., Bassett Furniture Industries Inc. and Thermal Energy Storage Inc.) for failing to report their year 2000 status.

Amervest, KMI, Bassett and Thermal settled with the SEC, and hearings for the other firms will be held at a later date.

Gates 'Pretty Sure' Win 2000 on Track

Delivery date depends on testers' feedback

BY DAVID ORENSTEIN

HEDGING on a deadline set earlier by Microsoft Corp., Bill Gates last week said he's "pretty sure" Windows 2000 can be delivered by the end of the year. Although some observers said they would wait for better quality, others said the operating system needs to face real-world usage now.

The Microsoft chairman's comments came at a Dell Computer Corp. conference in Austin, Texas. Other Microsoft officials have called the year's end a set deadline, but "with quality as the top goal," delivering Windows 2000 by then depends on the feedback from customers currently testing the software, Gates said.

After hearing Gates' comments, analyst Michael Kwatinetz at Credit Suisse First Boston in New York predicted that Microsoft will officially launch Windows 2000 at Comdex in Las Vegas in November but won't ship the final product until early next year.

But the longer it takes for the final version to reach evaluation teams, the longer it will take for corporate users to plan the eventual rollouts, said analyst Rob Enderle at Giga Information Group Inc. in Cambridge, Mass. Deployments could therefore be delayed by as much as three months, he said.

MICROSOFT'S Bill Gates: "Pretty sure" of Windows 2000 release by the end of 1999

Sometime soon, Windows 2000 will reach the point where only real-world tests will identify problems, Enderle said. "I'm not convinced that further delays in shipping are going to result in a better product," he said.

"[Most evaluators] will be grabbing Windows 2000 as quickly as it comes out to get started on it," agreed analyst Sue Aldrich at Patricia Seybold Group in Boston. But because of stability problems in release candidate one, Windows 2000 needs more time in the shop, she said.

Microsoft has pledged that release candidate two is due before Labor Day.

Robert Forbes, online technology manager at First Tennessee National Corp. in Memphis, said he would rather not see a buggy, bloated version of Windows 2000 this year. "If typical Microsoft holds true, [Windows 2000] will ship with lots of problems," Forbes said. "I'd much rather see [Microsoft] hold it back and see how tight they can get it and how much smaller they can get it."

The IDG News Service contributed to this report.

Quick Internet Support Coming to Dell PCs

Service now gives server failure alerts

BY MATT HAMBLEN
AUSTIN, TEXAS

Dell Computer Corp. last week announced a free Internet support service for servers and PCs that promises to help free up beleaguered corporate help desks.

Software to enable the service, called OpenManage Resolution Assistant, is free with Dell PowerEdge servers and will be offered with PCs by the end of next year, Dell officials said at the company's Direct-Connect forum here.

SOURCE: INTERNATIONAL DATA CORP., FRAMINGHAM, MASS.

With the software, a company can decide whether Dell support staff should be contacted automatically about a server hardware or software problem, such as a hardware component failure or a virus detected on an e-mail attachment.

With the upcoming PC version, a company could use Resolution Assistant to allow immediate trouble reports to be referred automatically or by a user to the help desk, which can try to solve the problem or route it to Dell technicians.

The *Atlanta Journal-Constitution* has been using the service for three Dell servers for three months and has had two problems solved, said Randy Hardin, desktop support manager at the newspaper. "We can sure stand having another set of eyes looking at our systems for problems," he said.

Two Austin-based companies — ClearSource Inc., a broadband access company, and Retro Studios, a software game maker — also have used the service on new Dell servers for several weeks. But they said they took steps to ensure the Internet connection to Dell is restricted to prevent loss of intellectual property.

Officials at both Austin companies and the *Journal-Constitution* said they are eager to test Resolution Assistant on future PCs. "Something like this should have a big payback in relieving the burden on support staff," said George Thomas, information technology manager at Retro.

For security, the service connection to Dell is encrypted and relies on digital signatures, Dell officials said.

Incorporating such features for free is another example of a hardware maker trying to differentiate itself from competitors with services offerings, analysts and users said.

Round Rock, Texas-based Dell has suffered from an image of not providing services to corporate users.

But the company's actions in the past 18 months "indicate it is becoming more serious about services," said Eric Rocco, an analyst at Dataquest in Stamford, Conn.

Custom-Fit PCs

PCs and laptops sold in the next year or two will have all the expected processor speed upgrades, but the major emphasis at Dell will be on customizing the machines for users.

That means everything from shipping customers various sizes and colors to providing connectors that streamline access to the Internet.

Dell CEO Michael Dell briefly showed an audience of 1,200 users a charcoal desktop PC about the size of a toaster, code-named Webster. It will be announced formally later this year and features a "relationship" button that will allow a user to contact a corporate help desk or a Dell technician.

Smaller desktops and space-saving flat-panel monitors are a priority for the Mayo Foundation, said Jay Young, communications technology services manager at the Mayo Foundation in Rochester, Minn.

- Matt Hamblen

MORE THIS ISSUE

Dell rolls out Latitude CS, a 400-MHz laptop. See page 84.

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PeopleSoft Plans Changes

Will Web-enable apps, reorganize support

BY CRAIG STEDMAN

AT ITS user conference in New Orleans this week, PeopleSoft Inc. is expected to detail plans to Web-enable its applications and announce changes in a support program that left some users unhappy.

PeopleSoft's new management said it will also try to give users at the conference a reason to keep believing in the software company after nine months of internal turmoil and sharp sales declines (see chart).

At the heart of PeopleSoft's turnaround strategy is the Internet. Sources said the Pleasanton, Calif., vendor plans to announce a release of its development tools that can be used to link browser clients to corporate systems via middle-tier application servers.

The PeopleTools upgrade is due by year's end and will be followed in mid-2000 by a PeopleSoft 8.0 applications release that's being built for the Web with the tools, sources said.

Dan Rich, CIO at VisionTek Inc. in Gurnee, Ill., said he wants PeopleSoft to better define its e-commerce plans. But the idea of using PeopleSoft's applications to automatically take orders and source raw materials via the Web "could just be huge for us," he said.

Right now, the computer parts maker has to call many suppliers to check on the price and availability of components it needs to fill orders. "The more automated we can get, the better chance we have of getting the job," Rich said.

On the support side, sources said PeopleSoft plans to partially undo a reorganization implemented earlier this year, when it eliminated account managers who worked directly with users and began funneling calls to a central support line.

PeopleSoft last week sent an e-mail message to some users detailing plans to add back an unspecified number of support account executives. They will act as liaisons between customers and the support center.

That's a good change, even if most calls still must go to the central line, said Roby Shay, director of information technology at American Century Services Corp. in Kansas City, Mo.

Workers who answer the phone at the support center often "don't know what your history is," Shay said. "It's very much a crapshoot." Getting an account executive to keep tabs on American Century's ongoing rollout of a new cost-analysis application could make it easier to get help, he added.

PeopleSoft declined to comment on its conference plans.

This is a chance for PeopleSoft to show it has a chance to rebound, said Jim Holincheck, an analyst at Giga Information Group Inc. in Cambridge, Mass. "There's been a lot of turmoil there, and it's still not clear where all the pieces are going to fall," he said.

- The shift of day-to-day management control from CEO and co-founder Dave Duffield to new company President Craig Conway
- The departure of other top executives, including Senior Vice President Ansel Bhuvi and Vice President of Sales Al Duffield
- A layoff of 430 workers, amounting to 8% of PeopleSoft's workforce
- An 80% drop in operating profits during the first half of the year, accompanied by a 52% decline in new software sales

Energy Groups Adopt Security Standard

Feds mandate PGP to protect data

BY ANN HARRISON

The Federal Energy Regulatory Commission earlier this month announced that it has mandated the implementation of Pretty Good Privacy (PGP) encryption and authentication technology by all members of the gas industry.

In a related decision, the U.S. Gas Industry Standards Board, comprised of 165 natural gas companies, is standardizing on PGP for increased data protection among member state utility companies. The board adopted the standard for interstate pipelines in 1997.

The commission, which is an independent regulatory agency within the U.S. Department of Energy, standardized on PGP Version 2.6 or higher to safeguard electronic communications among gas firms.

Both mandates are part of a larger movement by utility companies to standardize on PGP for secure communications. Some branches of the U.S. government such as the Department of Commerce have discouraged the export of strong encryption technology to overseas companies.

More To Follow

But Jim Buccigross, chairman of the gas board's executive committee, said the Federal Energy Regulatory Commission is following the recommendations of gas companies in standardizing on PGP and is trying to extend the mandate to other types of utilities.

According to Buccigross, gas companies weren't motivated by concerns about potential data tampering by terrorists, but by concerns about competitors.

Gas board executive director Rae McQuade said PGP supported almost every commercially used platform and operating system and met stringent requirements for data privacy, data integrity, authentication and nonrepudiation. Board members use PGP-compatible 128-bit Secure Sockets Layer to exchange data with trading partners in Canada and Mexico. "PGP has [an] acknowledgment [feature], which is so critical in transactions that need to be time-stamped," McQuade said.

PGP, which is sold by Network Associates Inc. in Santa Clara, Calif., includes the PGP Command Line product that provides encryption and authentication for automated processes such as batch transfers. The PGP Data Security Suite includes a PGP Desktop tool, a PGP VPN client, a PGP Policy Management Agent and a PGP Certificate Server.

How PGP Works:

- PGP uses public-key encryption.
- If Company X wishes to send a private message to Company Y, it encrypts the message with the public key of Company Y.
- When Company Y receives the message, it decrypts the text with its private key.
- Members of the Gas Industries Standards Board retain their private PGP keys and exchange their public PGP keys.

SAP to Unveil Web Agenda

Says it will include mix of other apps

BY CRAIG STEDMAN

After several months of floating Internet trial balloons, this week SAP AG will start trying to convince users that it has a coherent plan for supporting Web-based computing with R/3 and its other applications.

SAP plans to detail the technology underpinnings for its mySAP.com Internet push at a conference for developers this week and at one for business users two weeks from now. It will also announce guidelines for setting up collaborative applications that run on the Web and mix its software with third-party packages.

'Mixed Messages'

Several R/3 users said they're waiting to hear what SAP has to say — and hoping the details will be more understandable than what they were previously told.

Jeff Smith, CIO at Allied-Signal Inc.'s diesel-engine turbocharger division in Torrance, Calif., met early this month with SAP executives to discuss the strategy.

"They had a very hard time articulating it," he said. "It was one of those things where it sounds great, but you don't know exactly what they were saying."

Ben Vettese, director of SAP applications at Elf Atochem North America Inc. in Philadelphia, had a similar reaction after a meeting in May.

"I got kind of a picture of what it's going to be like, but it was pretty vague," Vettese said. He noted it wasn't clear if a group of companies looking to automate transactions via the Web would all need to install SAP's software.

Chris Larsen, a senior vice president at SAP America Inc., acknowledged that the company has "sent a lot of mixed messages out the door since May." But he said the strategy should be ironed out by the Sapphire '99 user conference.

Some things still aren't past the vision stage, Larsen said. For example, SAP is trying to sign up financial services and third-party logistics firms to build automated bill-payment and order-fulfillment capabilities into the mySAP.com.

"A lot of this is conceptual, but the direction is the right one," said Stephen Cole, an analyst at Forrester Research Inc. in Cambridge, Mass. Especially important, he said, is the need for SAP "to reach beyond itself and look at integrating with other applications."

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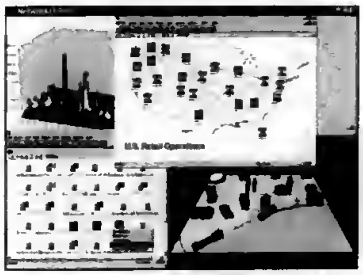

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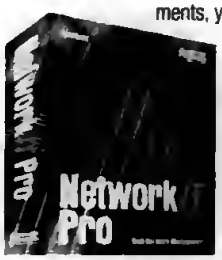

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BRIEFS

Nordstrom to Expand Online With VC Cash

Seattle-based Nordstrom Inc. announced that it's spinning off its e-commerce business and creating a separate subsidiary called Nordstrom.com. The new unit's first major Web-based operation is being billed as "the world's biggest shoe store," with more than 20 million pairs of shoes for sale. Using $16 million in venture capital, the company will expand on the current Nordstrom Web site, which was launched 10 months ago.

Schwab Launches New Trading Service

Charles Schwab & Co. last week launched a new desktop trading system, called Velocity, for its investor clients with $100,000 in household equity or more than 12 commissionable trades per year. The new service promises to speed the transfer of trade and quote information and to enable clients to trade on multiple accounts without separate log-ins and submit multiple orders from a single screen.

Student Found Guilty In MP3 Case

Jeffrey Gerard Levy, a 22-year-old student at the University of Oregon, was convicted last week of illegally distributing MP3 music files on the university's computer system. Levy faces three years in prison and a $250,000 fine, said Assistant U.S. Attorney Sean Hoar. Levy's MP3 site sent out 1.76 bytes of data in two hours. He is the first person convicted under the No Electronic Theft Act.

Short Takes

COMPAQ COMPUTER CORP. will lay off 1,000 people, or 01.5% of the workforce, at its Singapore manufacturing plant in Yishun. . . . A survey of 40 companies doing business on the Internet showed that fewer than half make a profit on package shipments and that 34 still can't fill international orders because of cross-border shipping complexities, said FORRESTER RESEARCH INC. in Cambridge, Mass.

XML Central to Lotus' Future

Internet standard to open up Domino

BY CYNTHIA MORGAN AND DOMINIQUE DECKMYN

Domino's proprietary environment will open up to the emerging Extensible Markup Language (XML) standard, Lotus Development Corp. officials said last week.

"Our goal for Domino is to store XML data natively," said Michele Daziel, Lotus' general manager of the Web application market.

XML technology will gradually be added to Domino, with a major update likely in the second half of next year. But Lotus wouldn't commit to full native support by then.

Native XML support in Domino is high on the wish list of Brad Hertenstein, manager of e-commerce and Web services at staffing and training firm Romac International Inc. in Tampa, Fla. Romac, which wants to export job-offer information to third parties, picked XML as its standard format. Today, that requires a Java servlet to pull data from a Domino database and convert it to XML.

XML is also key to Lotus' knowledge management plans, currently code-named Project Yoda, where XML will be used to help summarize and categorize data in Domino databases, Web pages and other documents.

Also of interest: Lotus said it will revamp Domino's mobile device support this fall by combining several products into a single package, Mobile Services for Domino 1.0. A second release of Mobile Services for Domino next spring will add support for Windows CE, Sharp Electronics Corp.'s Zaurus and Epoc32/Symbian devices. The company will eventually include support for universal Web clients via the Wireless Markup Language, an HTML-like page description tool.

Lotus officials, speaking to editors of *Computerworld* and other International Data Group publications, also said they will focus on developing Notes and Domino products that can be sold outside Domino environments. The first signs of the new non-Domino emphasis will come with the Notes R5 client itself; Lotus is beginning to sell the software as a personal messaging and productivity tool for earlier versions of Domino and other environments.

"We'll continue to move downstream with the Notes client," said Notes marketing manager Carl Tyler. "We'll make it valuable to any consumer, not just Notes installations."

Lotus eSuite Future Cloudy

Software vendors that use Lotus Development Corp.'s eSuite set of Java components as part of their portal products are in the dark about the future of the technology.

Reports last week said that eSuite will be terminated because of the disappointing market for Java-based network computers. But sources close to Lotus said the reports were overblown. Lotus spokesman Paul LaBelle had no comment on the rumors.

Though a repositioning of eSuite is imminent, a definite decision hasn't yet been made, and components will likely show up in other Lotus products, sources said.

Several software vendors, including Infoimage and Quadran Inc. in New York, are using eSuite as a front-end component in their enterprise portal products.

"This is disturbing news if it is true," said Quadran CEO Philip Chambadal.

Although happy with the eSuite spreadsheet component, Quadran said that functionality could be replaced by Java components from other vendors.

– *Dominique Deckmyn*

CA Will Now Manage Business Processes

Opinions mixed on when and how well software from InterBiz unit will fare

BY SAMI LAIS

COMPUTER Associates International Inc. last week unleashed a beta version of its BizWorks framework for managing business processes. But some users and analysts were skeptical that the futuristic software will be implemented any time soon.

The framework comes from a new CA division called InterBiz Solutions Inc., which markets business software outside CA's usual field of network and systems management.

"I don't think there's going to be a huge groundswell" of companies implementing the full InterBiz line, said Steve Gregory, corporate director of information services at Cleveland-based Oatey Co. and a user of CA's enterprise resource planning (ERP) software, PRMS.

For users of CA's ERP products, the leap may not be too great. "I can see taking the ClearView [data warehousing tool]; that's not too Buck Rogers," Gregory said.

But Gregory said he likes CA's edginess. "We're a little conservative, but we like to have a company pushing the envelope."

Functionally similar to CA's Unicenter TNG, BizWorks was designed for managing business processes, not networks and systems. Existing and planned products from InterBiz, third-parties, vertical market vendors and users' homegrown applications will plug into BizWorks.

More important for current users, PRMS and dozens of other product lines consolidated under the InterBiz name will also continue to be supported and developed as stand-alone products.

That news was a relief to the Acacia Users Group, said Gregory, who is president of the group, because InterBiz is absorbing the Acacia product line. "As a part of what a user group does, we'll be holding their feet to the fire to make sure that happens," he said.

BizWorks is intended to give CEOs real-time information about business and trading partners by collecting information from disparate systems, monitoring business events and alerting managers to problems. The question is whether the concept will fly or mingle its ashes with business process re-engineering, executive information systems and other Edsels of the software world.

Calling the concept "compelling but deeply flawed," Martha Bennett, an analyst at Giga Information Group Inc. in London, questioned "how far down the supply chain would you have to go, with everyone using the same software, for this to work as advertised?"

"It's a new way of thinking about using the technology," said analyst Michael Dortsch at Robert Frances Group in Westport, Conn. As unlikely as the concept sounds, Dortsch said he isn't writing it off, partly because of InterBiz President Reuven Battat's record as the marketing guru behind Unicenter TNG's success.

JUST THE FACTS

InterBiz's Lineup

- BizWorks framework; in beta
- Rank Performance Management Suite, for profitability measuring; November beta
- Datacquire, data handling tool; due late this year
- WebTrade, Internet order-entry tool; now available
- Reports, client/server report generator; now available
- Advanced Financials Option, general ledger; now available
- InterBroker's Marketplace/Net, financial manager usable via the Web; now available

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OS/390 Release 8 Targets Web, Security

BY JAIKUMAR VIJAYAN

Web security and network management take center stage in IBM's latest release of its OS/390 mainframe operating system.

IBM last week announced OS/390 Release 8, featuring enhancements to the operating system's virtual private network support, communications server support, centralized management of digital certificates and Lightweight Directory Access Protocol (LDAP) capabilities.

The release builds on IBM's efforts to recast the S/390 mainframe as a secure database and application server engine for large Web applications, said Steve Matheys, vice president of application development at Green Bay, Wis.-based Schneider National Inc., a $2.7 billion provider of transportation services.

"IBM's move to create Web server capabilities, Java hosting, development and deployment capabilities and the new security features are certainly interesting to us," he said.

IBM's S/390 mainframe currently hosts an Internet-based order-entry system, a Web-tracing and -tracking application and an Internet invoice application at Schneider.

Enhancements in the release include the following:

- Support for Internet Key Exchange technology for cryptographic key and security management on e-commerce sites.
- A high-availability feature called Virtual IP Addressing Takeover, which routes online traffic to an alternate connection if a primary one fails.
- Service policy enhancements that let administrators update policies without affecting network availability.
- Support for the LDAP Version 3 protocol, allowing OS/390's LDAP server to interoperate with other LDAP Version 3 servers.

Although unlikely to attract new users on its own, OS/390 Release 8 gives existing ones reasons to stay with their mainframes for Web applications, said Cal Braunstein, an analyst at Robert Frances Group Inc., a Westport, Conn.-based consultancy. "The mainframe has been a trusted machine for running critical enterprise applications. ... If it cannot do the same on the Web, companies will eventually move off it," he said.

- Support for Internet Key Exchange
- Centralized management of digital certificates
- Virtual IP Addressing Takeover with Secure Way Communications Server
- Service policy enhancements
- Support for Internet Printing Protocol for processing print jobs over the Internet

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Disney Strengthens Online Presence With Toysmart

Both gain access to new markets

BY JULIA KING

WALT Disney Co.'s Buena Vista Internet Group and Toysmart.com Inc. in Waltham, Mass., are teaming up for a stronger presence in the crowded and highly competitive online toy market.

By Nov. 1, Toysmart.com said, it will expand its current offerings of 20,000 toys, books and other items to 75,000, in time for the holiday selling season.

The expanded product line will include Disney paraphernalia. But Toysmart, which specializes in what it calls "good toys," isn't required to carry Disney's full product line on its site.

Toysmart.com recently built a 126,000-sq.-ft. fulfillment center in Worcester, Mass. The company has also fully integrated its Web site to its back-end inventory and financial systems, giving it the ability to check product availability in real time.

"Our advanced technology platform gives us an edge," said the CEO of Toysmart.com, David Lord, who was formerly CIO at Waltham, Mass.-based Holt Co., the company from which Toysmart.com was spun off.

Classics

Lord defined *good toys* as "timeless classics that inspire the imagination of a child," citing wooden train sets made by Swedish toy manufacturer Brio as an example.

The good-toy market is now highly fragmented, with hundreds of manufacturers making toys sold at thousands of small retail shops and at various Web sites, Lord noted. The crux of the company's strategy is to aggregate those products at a single Web site and fulfill orders for products from many manufacturers through the new fulfillment center.

TOYSMART'S David Lord (right) and Buena Vista Internet President Chuck Davis aim to offer hundreds of "good toys" on one Web site

To execute that plan, Toysmart recently installed and integrated fulfillment and customer service software from Yantra Corp. in Acton, Mass., and Silknet Software Inc. in Manchester, N.H.

Under the terms of a deal announced last week, Disney bought nearly a 60% stake in Toysmart.com.

According to Mike May, an analyst at New York-based Jupiter Communications LLC, the deal gives both companies immediate access to new online markets.

More for Disney

"Investing in Toysmart.com allows Disney to derive e-commerce revenue from products other than their own. Without additional [online] retailers, Disney can't peddle brands outside of Disney. There's only so much demand for Snow White and Cinderella movies," May said.

Toysmart.com, on the other hand, gains online shelf space for its products at high-traffic family sites, such as Disney's Family.com.

Retraining Helps State Avoid Layoffs in Outsourcing Move

BY PATRICK THIBODEAU

In what may be the largest state government outsourcing project, Pennsylvania last week finalized an agreement to outsource its 16 data centers to Unisys Corp., which will consolidate them into one data center.

Pennsylvania officials said they expect to save approximately $150 million from the $800 million it would cost to keep 16 data centers running over the seven-year contract.

Additionally, Blue Bell, Pa.-based Unisys will improve the state's computer hardware and disaster recovery ability, said Kurt Haines, the state's project director.

Despite the benefits, other states aren't rushing into big outsourcing deals. Those projects can take years to finish, and labor issues — especially in heavily unionized state workforces — can make outsourcing politically difficult.

Pennsylvania diffused the labor issue by retraining two-thirds of the 380 data center employees who won't work in the consolidated data center, thus avoiding layoffs.

Rock Regan, Connecticut's CIO, said Pennsylvania's retraining certainly made the outsourcing move smoother and may well have been its "secret of success."

Connecticut attempted to outsource approximately 800 state information technology employees, a move opposed by state labor unions. Those state IT employees would have become employees of Electronic Data Systems Corp. in Plano, Texas, under the now failed $1 billion plan. But in June, Connecticut changed course and said it would give its employees the option of remaining on the state payroll. However, EDS and the state couldn't come to final terms.

JUST THE FACTS

Pennsylvania Outsources

- Will consolidate 16 data centers into one
- Will reduce data center employees from 380 to 120
- Savings estimated at $150M over seven years
- State employees are being offered retraining for other state IT jobs

System Aims to Ease Path for Web Hosting

BY CAROL SLIWA

When Knight-Ridder Inc.'s new-media division offers its local advertisers the chance to set up Web storefronts this fall, it won't do all the work itself.

The unit of San Jose-based Knight-Ridder contracted with Kinzan.com, a Carlsbad, Calif., company that today will launch a turnkey system for developing and hosting sites.

"What's unique about what Kinzan's offering is that they have a framework for creating mulitiple Web sites that have the same look and feel and unique information and data," said Mikelle Eastley, a consultant at Northeast Consulting Resources Inc. in Boston.

Other companies using Kinzan.com's software and services to offer their affiliates or franchises the chance to build Web sites or storefronts include AutoTrader.com LLC and Carlson Wagonlit Travel.

With Kinzan.com's SiteMan family of software products, users don't need any special software installed on their desktops to set up a Web site. They simply point to a predesignated Web address where they will find an application with templates that guide them through the Web site creation process and give them color and appearance choices. Because Kinzan.com also hosts the sites, the merchants don't have to worry about contracting with an Internet service provider.

"They've got really easy-to-use tools so that merchants can build [sites] themselves and don't need to know HTML," said Emily Lyons Soelberg, e-commerce business development manager at Knight-Ridder's new-media division. Kinzan.com also handles customer technical support and ongoing product development, she added.

Knight-Ridder's online properties can help the merchants set up the sites themselves or let them do the work themselves. The company charges the merchants a fee and, in turn, pays Kinzan.com for its services. Kinzan.com's fees can range from $50 to $200 per site.

AutoTrader.com (formerly AutoConnect.com) in Atlanta helps used car dealers that provide listings for its Web business set up sites of their own with help from Kinzan.com. Each AutoTrader listing can be set up to carry a link that sends interested consumers off the main site to the used car dealer's Web site.

"We create the sites for them using [Kinzan.com's software] and set up the inventory link. Then the editing tool is easy enough to use so that the dealer can go in and make changes and update the site," said Martin Fleischmann, an AutoTrader product manager.

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BRIEFS

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The Anti-Virus Emergency Response Team of Network Associates Inc. (NAI) in Santa Clara, Calif., issued warnings last week about the new Kriz and Toadie viruses. The Windows 95/98 Kriz virus creates the file WININIT.INI in the Windows subdirectory. Users infected with the Toadie DOS virus will see a message that says, "Toadie initializing."

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Cruise Line Offers Web Surfing at Sea

Royal Caribbean Cruises Ltd. in Miami has developed Internet communications centers on its ships, which will let passengers access e-mail, surf the Web and send virtual postcards while at sea. The service will debut Sept. 24.

Software-Based Modem to Debut

Motorola Inc. plans to demonstrate the first software-based modem on a PC motherboard at the Intel Developer's Forum in Palm Springs, Calif., today. Motorola officials said. Also at the forum, Intel Corp. is expected to announce a new chip for the communications market called the IXP 1200.

Short Takes

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Cisco Aims for Greater Voice/Data Convergence

Acquisitions add flexible bandwidth, connections to traditional networks

BY KATHLEEN DHLSON

CISCO SYSTEMS INC. last week acquired two more companies to help add to its product line the ability to combine voice and data networks to keep up with changing Internet traffic.

San Jose-based Cisco bought Cerent Corp. and Monterey Networks Inc. for a combined $7.4 billion in stock. Cerent, in Petaluma, Calif., develops products with various forms of compression and multiplexing that increase the amount of data that can flow through a fiber-optic connection. It also allows connections to traditional packet-switched networks and the ability to increase bandwidth allocations.

Richardson, Texas-based Monterey makes cross-connect products that can boost capacity at the core of a network, where traffic is highest.

Earlier this year, Cisco bought other vendors for their optical networking and data/voice convergence capabilities, including Pipelinks Inc., GeoTel Communications Corp., TransMedia Communications Inc. and StratumOne Communications, and invested $1 billion in KPMG Peat Marwick LLP.

The optical network market is the next important arena in networking and telecommunications, said Andrew Cray, an analyst at Boston-based Aberdeen Group Inc. Cerent's and Monterey's products "significantly add intelligence to optical networking" because before now, "it was very dumb and didn't do much" except provide bandwidth from point to point, he said.

The acquisitions give Cisco more offerings to large companies that want to combine voice and data and run high-demand applications on their networks. But they also put Cisco in competition with Lucent Technologies Inc. and Nortel Networks Inc. and other companies that have traditionally sold to Internet service providers and telecommunications vendors, analysts said.

"Cisco faces a significant challenge because it will have a different type of customer than its history," said Jim Slaby, an analyst at Giga Information Group Inc. in Cambridge, Mass.

But if Cisco can be "as successful in telecommunications as it is in hardware, then [entering the optical network market] is great," said Scott Eggers, director of information services at Wham-O Inc., a San Francisco toy maker. The question for Cisco is how it will structure its products and prices for end users, he said.

Cisco's Shopping Spree

Some of the larger Cisco deals in the past five months include:

AUGUST 1999 — KPMG, $1B investment (20% stake); services to develop Internet-based data, video and voice transmission

JULY 1999 — StratumOne Communications, $435M in stock; next-generation semiconductors for high-speed data networks

JUNE 1999 — TransMedia Communications, $407M in stock; ATM-based circuit switching, voice-over-packet technology

APRIL 1999 — GeoTel Communications., $2B in stock; distributed call centers

SAP Modeling Tool Expands

Mil 3 offers product to HP OpenView users to improve SAP performance

BY SAMI LAIS

At the OpNetwork '99 user conference today in Washington, Mil 3 Inc plans to announce a licensing agreement making its NetworkGuru network modeling and simulation tool for SAP R/3 available to Hewlett-Packard Co. OpenView users. HP will sell the tool under the name Service Simulator for Networks for SAP R/3.

The tool will make it easier for HP users to prevent performance problems before rolling out applications like SAP R/3.

NetworkGuru worked for an SAP rollout at an oil company in Dallas, said Robert Rohlin, senior consultant at Modis Solutions Inc. in Denver, which led the planning efforts. Modeling helped Rohlin prevent problems that often plague SAP customers such as sluggish networks and spiking wait times. The rollout is nearly done at the oil company's European sites and half done at 26 U.S. sites, and "networks are performing as our models predicted," he said.

Bandwidth savings are about $4,000 per month, Rohlin said. Bigger savings are in "soft dollars — people are waiting two seconds instead of 30 seconds for transactions," he said.

Discrete modeling uses transaction-level performance data computed at every device — an accurate but time- and resource-consuming process. Analytical modeling uses a statistical analysis of application-level performance data, which is faster but less accurate. ERP NetworkGuru for SAP R/3 costs $37,000. HP OpenView Service Simulator for Networks for SAP R/3 costs $39,700. The SAP R/3 module for existing OpenView systems costs $19,300. Mil 3 is based in Washington.

Ford Goes to Court over Site

BY KATHLEEN MELYMUKA

A showdown in U.S. District Court today between Ford Motor Co. and a Web site author may begin to draw the line between corporate security issues and freedom of speech on the Internet.

Last week, Ford won a temporary restraining order that forbids Robert Lane of Dearborn, Mich., to publish the contents of confidential company documents on his site. Today's hearing is an attempt to obtain a permanent injunction.

Lane built his site as a Ford enthusiast early last year, but by year's end, he was posting confidential company documents he had received from Ford employees. "Clearly, this isn't a First Amendment issue," said Ford spokesman Jim Cain. "It's a corporate security issue for Ford — a trademark and copyright issue. We have to act aggressively."

On his Web site (*www.blueovalnews.com*), Lane, who has temporarily removed the offending documents, used quotes from fiery freedom fighters such as William Wallace in the film *Braveheart* to paint the clash as a constitutional crisis over freedom of speech.

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IF YOUR INTERNET SERVICE ISN'T GUARANTEED, THERE ARE ALWAYS OTHER WAYS TO COMMUNICATE.

UUNET

Continued from page 1

Sun Clients

issue with JavaStations. "The early attempts at Java computers were doomed to failure because there just wasn't software that provided a compelling case for end users to use it," said Tom Austin, an analyst at Gartner Group Inc. in Nashua, N.H.

Sun unveiled its first JavaStation in late October 1996. The $1,000 first-edition machine had 8M bytes of RAM and ran Java-based applications.

In March 1998, Sun announced the commercial availability of the retooled JavaStation at $699. Customers, including AlliedSignal Inc. and PHP Healthcare Corp., signed up for the devices, but overall sales were slow because of the lack of applications.

Sources said Sun will position the new models as front ends for application service providers and processing and call center operations. New Mexico Mutual Casualty Co. is testing the appliances for claims processing. Litton Data Systems, Bell Atlantic Corp., British Telecommunications and the U.S. Navy's San Diego-based software development unit are also beta deployers. Those users declined interview requests.

Some industry watchers said it might be difficult for Sun to penetrate a market in which Microsoft Corp. and Citrix Systems Inc. — which provides the thin-client operating system to run Microsoft applications — are entrenched.

Sun will have trouble "unless they have a specific target market that will find their technology extremely useful very quickly," said Dave Friedlander, an analyst at Giga Information Group Inc. in Cambridge, Mass.

Others said opportunities for Sun will extend beyond its own thin clients. "I'm excited about the possibility of Sun offering this as a chunk of software that every appliance [server vendor] can offer. That's what they intend to do," said Kimball Brown, an analyst at Dataquest in San Jose.

Separately, Sun last week said it has ended its project with IBM to develop a Java-based operating system for network computers. The project, started a year ago, aimed to build an operating system that would optimize thin-client applications.

Lisa Carnochan, Sun's product line manager for client software, said it was a mutual decision by the companies after looking "a year down the road" and finding that makers of handheld devices, e-commerce sites and others were "already doing this for us."

MOREONLINE

For coverage of thin-client computing and links to other pages, visit our Web site.
www.computerworld.com/sun

HP: Thin Again

Hewlett-Packard Co. will take aim this week at what it sees as a booming thin-client market when it announces a new family of thin-client computers along with a new brand name.

HP launched its first family of thin clients, the Net Vectra, early last year. It outsourced the design and manufacture to Wyse Technology Inc. The new thin-client line, called Entria, is the first designed and manufactured by HP itself, said product manager Brent Rarnal.

HP will offer three Entria product lines. The G series uses an embedded version of Windows CE and can access Windows applications running on Windows NT, Terminal Server Edition and Citrix Systems Inc. Metaframe software.

The L and X series use an embedded Linux core and include Netscape Navigator for browser-based access to Java programs as well as access to Windows applications.

Rarnal said the G series will likely be priced between $500 and $600, while the L series will be priced under $700.

– James Niccolai, IDG News Service, San Francisco

German Data Center Buys IBM Thin Clients

Vendor gets biggest sale yet of Network Stations — 12,500

BY STACY COLLETT

GAD, a German data processing center for a cooperative network of banks, has ordered 12,500 IBM Network Stations to be installed at 400 of its local branches. The order marks IBM's largest sale of thin clients in Europe to date.

Thin clients are PC-type workstations that rely on servers for processing power and applications instead of an internal hard drive. The devices will be used with eight IBM S/390 enterprise servers, which will allow back-office and customer-facing employees to have access to GAD's banking application suite, called BB3.

GAD operates 60,000 workstations, the majority of which are PCs, "which made simple maintenance and software upgrades a big logistical headache," said Heinz Kratt, a GAD board member. Kratt said GAD plans to replace half of its PCs with thin clients.

CGU PLC, a large insurance company in the U.K., has also ordered 2,500 IBM thin clients, adding to the 4,000 network stations already in use.

IBM officials said the purchases mean companies are becoming more confident in the long-term viability of thin clients. Aberdeen Group Inc. in Boston predicts thin clients will represent nearly 30% of all desktop platforms by 2003.

Eileen O'Brien, an analyst at International Data Corp. (IDC) in Framingham, Mass., said IBM's multinational presence and prominence in the banking industry would make it a logical choice for the German companies and that thin clients are growing in popularity worldwide.

An upcoming IDC thin-client report shows sales rising this year over last. "It looks like the market at the half-year point is going to be pretty close to what the entire market was in 1998," O'Brien said. Last year, 350,000 thin-client units were sold, and industry revenue was $287 million.

Continued from page 1

Online Shoppers

earlier this summer by The Yankee Group in Boston, fewer than 30% responded to queries within 24 hours. And after 48 hours, only 60% had responded. And even when the companies did respond, getting a straight answer was a 50-50 proposition.

"You can't take it for granted that they're going to answer your question correctly," said analyst Steve Robins, who sent off "really simple" questions, such as 'What is your return policy for goods after 45 days?' Robins said he intentionally asked about 45 days in hope of receiving a customized reply.

Several companies responded with canned e-mail describing their regular 30-day return policy, he said.

Robins sent the queries on Sunday during Memorial Day weekend. He discovered that even though company Web sites are open for business around the clock, their Web-based service operations don't keep the same hours.

"That's totally counter-intuitive," Robins said. Even if companies can't furnish a specific reply within 24 hours, they should at least immediately acknowledge receipt of the customer's query, he said.

David Marshak, an analyst at Patricia Seybold Group in Boston, put it this way: "Everybody can look like a big player on the Web, but not everybody's acting like a big player."

Instead, in their rush to establish themselves online, too many companies considered online customer service only as an afterthought. Online merchants are improving somewhat, but customers' expectations are far outstripping the improvements.

"A year and a half ago, it was great when the order went through. Now that's not the case at all," Marshak said. "Customers expect to order immediately and get answers immediately. The expectations are higher and the commitment of merchants hasn't risen to meet those expectations."

But a few companies, including Dodgeville, Wis.-based Lands' End Inc. and Iselin, N.J.-based Datek Online, stood out in the cybercrowd.

Lands' End, for example, responded in just 33 minutes. Datek didn't respond fastest, but it returned the most complete and accurate reply, which won the company the No. 1 ranking.

Both companies have dedicated e-mail-based, customer-support groups. Lands' End covers a 19-hour shift, seven days per week. Last year, the group received and responded to 141,000 e-mail queries.

At Datek, the e-mail support teams' coverage hours are 8 a.m. to 7 p.m. However, whenever a query is received, an electronic receipt is automatically sent out, promising to get back to the customer with an answer within 24 hours.

The average response time for the 10,200 e-mails that come in monthly is 17 hours, said Nicole Boxer, customer support manager. "We also advise customers that if it's an important issue, like a trading issue, to call the telephone support center," Boxer said.

At the lower end of Yankee's rankings was CDnow Inc., an online music retailer in Fort Washington, Pa. Based on response time and quality, the company scored 18 out of a possible 100.

A company spokeswoman said the poor showing was "an isolated incident." She also noted that it occurred over a holiday weekend, when it's more difficult to staff the customer-support operation.

- Confirm receipt of a customer's query
- Set customers' expectations
- Meet stated deadlines for answers

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- L. L. Bean
- Fidelity Investments
- Ameritrade
- Beyond.com

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Employers Offer New Perks to Bored Pros

Money secondary to adding new skills

BY STEWART DECK

The shortage of skilled information technology workers has created ongoing turnover among people more attracted to the chance to collect new skills than to a bump in pay.

Many of these workers are beginning to turn to online outlets such as Louisville, Ky.-based TechRepublic Inc.'s *www.techrepublic.com*, Edina, Minn.-based RIT Systems Inc.'s *www.techies.com* and Boca Raton, Fla-based Consultis Inc.'s *www.consultis.com*, all of which offer, to varying degrees, a mix of forums, training, advice and peer-to-peer interaction as resources.

Getting Advice

On the TechRepublic Web site, for example, registered users and visitors can browse through training and support topics, support and administration sections and link with peers to discuss experiences.

Part of Melissa Loadholt's job as a network administrator at McNair Law Firm, PA in Columbia, S.C., involves training lawyers and staffers in new applications and systems. She said TechRepublic's section on training has provided her with plenty of information, both technical and nontechnical.

Separately, a recent survey describes how some employers are fighting the staffing battle: with bonuses, stock options and workstyle choices.

They're also keeping their human resources teams plugged in to hot skills areas so they can proactively propose training in hot and developing areas to keep good IT workers from leaving.

"The No. 1 reason people change [technology] jobs is so that they don't go stale — they want to stay current with their skills," said Tom Cottingham, president and CEO of TechRepublic.

"The key to keeping skilled people is to engage them in their work so that you can circumvent that first call from a recruiter," said Georgine Young, a compensation analyst at Hewitt Associates LLC in Lincolnshire, Ill.

In a recent survey of 224 U.S.-based companies, Hewitt Associates found that IT workers are currently engaged by enterprise resource planning (ERP) projects. "ERP skills are still very hot," Young said. And the developing areas of call center architecture, information security, disaster recovery and data mining and warehousing are projected to be fields where skilled workers can write their own tickets.

Rewarding Employees

Incentives for skilled staff:

- Extend bonuses to junior IT employees
- Give project-completion bonuses
- Regularly review compensation
- Stay current on hot job skills

Percentage of IT employees receiving bonus of some type:	
1997	42%
1998	57%

A Y2K Bill of Health

Federal agencies say medical devices, nuclear stockpiles should be problem-free

BY PATRICK THIBODEAU
WASHINGTON

THE U.S. Food & Drug Administration last week said it sees "no indication of widespread problems" related to Y2K with medical devices as long as manufacturers' recommendations are implemented.

And separately, the U.S. General Accounting Office reached the conclusion that the nation's nuclear weapons stockpile is in no danger of blowing up as a result of the year 2000 problem.

Approximately 2,000 of 13,500 medical devices manufacturers in the U.S. make products that may be potentially susceptible to Y2K problems. But there are few products in which the date is critical to the device's effective functioning.

Those devices include radiation therapy treatment planning systems, hemodialysis machines, some blood product devices and ultrasound systems, the FDA said.

According to the GAO, four types of nuclear weapons in that approximately 10,000-weapon stockpile contain microprocessors, but the processors don't generate or store a date.

The GAO, however, chastised the U.S. Department of Energy's Y2K review process. In assessing the Y2K vulnerabilities of the weapons, DOE officials relied on the memory and experience of the bomb designers and didn't review software code. DOE, in response, said it would seek more thorough documentation.

Document Management Players Brace for Microsoft

Initial strike may devastate small firms

BY DOMINIQUE DECKMYN

Microsoft Corp.'s long-awaited entry into the document management space next year is expected to cause a major shift in a market dominated by a handful of vertical players.

In May, Microsoft first outlined its plans for providing a range of technologies for the data worker. A key component is code-named Tahoe, which will provide basic document management features such as document check-in and check-out, and routing and version control. Tahoe's tight integration with the Windows environment will be "pretty compelling to customers," said Jonathan Penn, an analyst at Giga Information Group Inc. in Santa Clara, Calif.

Microsoft has been quietly discussing Tahoe with the leading document management vendors since last fall, encouraging them to add value to it rather than compete with it. Although those vendors are saying they aren't worried by Microsoft's entry, they're rushing to integrate more tightly with Microsoft Windows, Office 2000, BackOffice and Outlook.

Michael Harris, a marketing executive at Costa Mesa, Calif.-based FileNet Corp., said his company is betting heavily on integrating with Microsoft software. FileNet's Panagon software is built on Microsoft's Component Object Model, which will make it easy to integrate Microsoft's basic document management features with FileNet's vertical applications, Harris said. He added that Microsoft's Digital Dashboard concept for a personal portal may provide an easy way to integrate Panagon with Tahoe.

Documentum Inc. in Pleasanton, Calif., another major document management vendor, earlier this year said it would move from providing an infrastructure for custom document management applications to developing packaged applications for vertical markets. But it too is working on a road map for integration with Windows 2000 and Tahoe.

"Microsoft doesn't really have anything but an announcement," said Dan Latendre, vice president of product marketing at Open Text Corp. in Waterloo, Ontario. But he said Open Text will integrate its Livelink software with Microsoft's Tahoe.

Most observers agree that Tahoe's document management features are quite basic and targeted mainly at Lotus Development Corp.'s Domino.doc — an add-on to the Domino groupware server. But if Domino.doc and Tahoe fight over the market, they will affect lower-end vendors such as Xerox Corp. and Eastman Software Inc., said Andrew Warzecha, an analyst at Meta Group Inc. in Stamford, Conn.

Decoding Microsoft Terminology

CODE NAME	WHAT IT IS	WHEN
Platinum	Next release of Exchange, contains Web Store	First half of 2000
Tahoe	Basic document management features for Web Store	A few months after Platinum
Grizzly	Workflow design tool	Early version due late 1999; Platinum version a few months after Platinum
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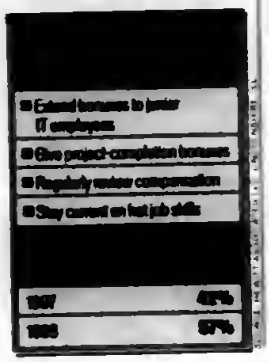

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A Y2K Bill of Health

Federal agencies say medical devices, nuclear stockpiles should be problem-free

BY PATRICK THIBODEAU
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Net Reliability Hinges On Web Site Architecture

IT executives make bet-your-business decisions, hope to avoid major outages

BY CAROL SLIWA

SYSTEMS MONITOR screens are flooded with bright red bars. Staffers scramble. It's Feb. 24, and Charles Schwab & Co.'s online stock-trading site is down for the count. A rapid-response team works feverishly at the company's San Francisco headquarters and Phoenix operations center.

Then come the words no one wants to hear: "It's on CNN."

Fred Matteson, a Schwab executive vice president in IT, once cracked that the company no longer needs to spend money on its systems management software. "The press is happy to call me whenever I have a problem," he said.

Today's information technology executives have the challenging task of making bet-your-business decisions about the internal plumbing of high-volume, transaction-oriented Web sites. The technology choices can affect the Web site's reliability for years to come, at a time when every outage is headline news.

Unwanted Attention

Schwab's press office counted 300 news broadcast reports about the 90-minute outage on Feb. 24. The irony was that, back in pre-Internet days, customers probably wouldn't even have known about the systems crash. Getting a broker to call back within 90 minutes was challenge enough.

"There was always a person between our systems and the customer. Now, with all this technology, they can see right into our systems environment. It's within 10 minutes of an outage that we start getting calls from the press and our customers," said Lisa Villarreal, a Schwab senior vice president in IT.

IT executives are well aware of the bad press auction site eBay Inc. got with its 22-hour blackout in June and other outages, not to mention the lost revenue. Downtime is costing major Internet players an estimated $8,000 per hour this year, according to Forrester Research Inc. in Cambridge, Mass.

"You're going to have to actually design systems for nonstop e-commerce. You need an architecture, and that's the most important decision you're going to make. Correct architecture makes you less dependent on the individual pieces," said Forrester analyst Carl Howe.

"Technology was always important, but never key to the brand the way that it is now," Matteson said. "Senior technologists are in a place where they significantly affect a company's success or failure based on the decisions they make."

The Right Approach

Companies attack the same problem in different ways, on different platforms, using different software — some homegrown and some packaged. Debates rage about whether to use Unix or Windows NT servers, for example. No one has all the answers.

But the most successful sites tend to favor a multitier architecture that features a presentation layer, a middle tier where the application's business logic rests and a back end where the data servers or mainframes run. Each tier can be changed and scaled independently, and fail-over systems are put in place so that if one server goes down, the work shifts to another box.

For Schwab, a key architectural decision came two years ago when it rewrote its middle-tier software to eliminate a situation where it had a single point of failure (see story below). Now, with reliability and scalability in mind, the company is pouring money into more mainframes, servers and the construction of a completely new data center that will mirror its primary center in Phoenix.

The mirror site — due for completion at the end of next year — will have just as much iron powering it, said Jim McGuire, who is the head of Schwab's Phoenix operation.

CDNOW'S Michael Krupit chose Unix over Windows NT

McGuire's team has gone to great pains to find a location that is within the 40-kilometer fiber-optic cable limits but that also sits in a different power grid, phone service area and flood plain than the Phoenix facility.

But Schwab's open-wallet approach won't work for everyone, particularly retailers selling low-cost items.

"To set up a whole environment to have that degree of availability and recoverability is expensive," said David Floyer, vice president of research at Boston-based ITCentrix Inc., which advises companies on technology decisions.

It makes sense for Schwab, which already used mainframes for its business prior to the Web. "But if you're taking orders for makeup over the Net and you have to ship something twice by accident, that's not the end of the world," Floyer said.

Reality Check

Proponents of multitier architectures claim that they can swap out any piece at any time. "But the reality is that the decisions they make are going to have major implications on their ability to move to any other platform," Floyer said.

CDNow's chief development officer, Michael Krupit, said he now wishes his company had made a different data storage decision. The Fort Washington, Pa., music retailer this fall plans to switch to a more scalable and reliable system.

But overall, Krupit said he's pleased with the flexibility afforded by the Unix environment that runs his company's proprietary middleware and Oracle 7.3 database servers. The company's Apache Web servers run on five Sun Microsystems Inc. E4000 boxes, and its databases run on two Sun E6500s.

Next year, CDNow plans to start building a completely redundant system that can take over if the existing one goes down — so customers will never know.

One type of software that Krupit does not feel comfortable using for his Web site is Windows NT. "I have a couple of Microsoft [systems] in-house, and they won't go on my store," he said.

Critics say NT isn't scalable enough as a Web platform and can be hard to manage, given the server farm that a high-volume site would need to assure reliability. But some users swear by NT.

The online bookseller Barnesandnoble.com, for example, relies heavily on NT. In March, CIO Gary King praised Microsoft Corp. technology, saying his company hasn't had any downtime related to scalability. But the New York-based bookseller refused to discuss its Web site technology for this article.

When making decisions about Web site reliability, companies need to weigh a variety of factors, such as how much downtime the Web business can tolerate, the cost of building fail-safe systems and the payoff in revenue.

David Fry, president of Fry Multimedia Inc. in Ann Arbor, Mich., runs Web sites for 25 major retailers.

"With most of our clients, it's sufficient to have a fail-over system that can be up in half an hour," Fry said. "But I think someone like a Schwab or an ETrade faces a huge fiduciary risk if they're down for five minutes." ◗

Schwab Avoids Disaster By Revising Middleware

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Ruling in Microsoft-Sun Java Battle of Little Help to Users

BY DAVID ORENSTEIN

Last week, a federal appellate court gave both Microsoft Corp. and Sun Microsystems Inc. small victories in their dispute over Java, but users won't get a clearer sense of the language's fate as a result of the ruling, observers said.

A three-judge panel of the 9th Circuit Court of Appeals lifted U.S. District Judge Ronald Whyte's November 1998 preliminary injunction against Microsoft.

That injunction forbade Microsoft from shipping Java products and software that are incompatible with Sun's Java platform because doing so might violate the Java license that Sun granted Microsoft.

Microsoft spokesman Adam Sohn called the decision positive, but emphasized that the trial is far from over. Sohn said the company has no plans to revert to its previous Java offerings, despite the injunction's demise. "Right now, we're going to stay the course," he said.

Based on a Technicality

The judges lifted the injunction because of a technicality — Whyte didn't sufficiently substantiate some of the basis of his ruling. In particular, they said he needed to explain whether shipping an incompatible version of Java would violate Microsoft's license and constitute a copyright violation or whether it would violate independent contractual obligations.

However, the appeals court judges also said they agreed with Whyte's view that the evidence suggests that Sun will likely prevail at trial.

Jon Kannegaard, interim president of Sun's software products and platforms division, said that affirmation should clarify for Java developers that Sun's version of Java is the standard and that deviations aren't allowed.

Observers said Java users will find little closure or direction in Monday's decision.

"It probably won't have a major effect," said Mark Driver, an analyst at Gartner Group Inc. in Stamford, Conn.

Even though the balance of the case seems to be leaning Sun's way, Microsoft can still opt to produce a "clean room" clone of Java that isn't restricted by its license from Sun, or it could offer an alternative to Java, code-named Cool, to the market, Driver said.

Rich Gray, an antitrust attorney at Bergeson, Eliopoulos, Grady & Gray LLP in San Jose, added that the court of appeals decision doesn't free Microsoft from the threat of future injunctions. The court decision gives Whyte room to issue the injunction based on other grounds, he said.

Computerworld senior writer Patrick Thibodeau contributed to this story.

resource PARTNER

BRIEFS

Nortel Purchases Voice Systems Maker

Nortel Networks Inc. acquired Peripheonics Corp., a Bohemia, N.Y.-based provider of interactive voice systems, in a deal valued at about $436 million. Nortel, in Brampton, Ontario, said the purchase is part of its strategy to deliver networks that unify voice, data and the Internet. Peripheonics' customers are mainly in the financial and telecommunications sectors.

Gartner Layoffs Part Of E-Commerce Push

Information technology research and advisory firm Gartner Group Inc. said it will lay off about 175 people, approximately 5% of its workforce, in an effort to refocus its resources on its new e-commerce products and services. Last month, the Stamford, Conn.-based firm launched 39 electronic-business-related products and services.

Compaq Sells VPN Tools to Axent

Compaq Computer Corp. has sold its AltaVista firewall and tunnel security products to Axent Technologies Inc. in Rockville, Md., for undisclosed terms. The deal requires Compaq to transfer the virtual private network (VPN) tools and engineering staff to Axent. Compaq will then resell the renamed products. Compaq said its security products were separate from the sale of Palo Alto, Calif.-based AltaVista Co. and Web search technology to Andover, Mass.-based CMGI Inc. in June.

Apple Sues Over iMac-like PCs

Apple Computer Inc. filed a lawsuit against Sotec Co., claiming that the Japanese computer maker copied its iMac design concept for Sotec's cut-price e-zee PC. Apple brought a similar case against eMachines Inc., a joint venture between Korean PC manufacturer Triflum Computer Inc., monitor maker Korea Data Systems and other investors. eMachines and Sotec jointly developed Sotec's Windows 98 PC.

Forté Acquisition Could Open Up Windows at Sun

But some question whether Sun will support non-Solaris platforms

BY DAVID ORENSTEIN

SUN MICROSYSTEMS Inc.'s purchase last week of Forté Software Inc. netted much more than a tool to produce Java for Solaris. But some doubt whether Sun is willing to embrace the other platforms that Forté's customers use.

Unlike Hewlett-Packard Co. and Compaq Computer Corp., Sun has kept other platforms at arm's length, including the lucrative Windows NT and Intel Corp. alliance. Analysts said the Forté deal gives Sun an opportunity to outwardly support Windows more broadly, but the company might ignore its chance.

Before Oakland, Calif.-based Forté adopted Java 11 months ago, it had built its business — valued in the transaction at $540 million — on an application development and deployment environment that generates C++ code for myriad platforms. Sun's business, meanwhile, is based on selling SPARC hardware running the Solaris operating system and licensing Java and other technologies.

Not Just Solaris

Forté President Marty Sprinzen said only a quarter of Forté's customers deploy on Solaris. And Sun President Ed Zander insisted that Sun would support Forté's non-Java tools and non-Solaris customers. Forté, he said, will operate intact as a subsidiary. "We're not just a systems and hardware and Solaris play," Zander said.

Analyst John Rymer at Upstream Consulting Inc. in Emeryville, Calif., said Sun's profits are much too dependent on selling SPARC and Solaris systems for the company to adopt the platform-agnostic approach of its competitors. He predicted that Forté will likely be fully integrated into Sun — complete with the departure of top executives — in the same way that such events occurred at application server vendor Net Dynamics, which Sun acquired last summer. Meanwhile, he said, Sun will try to push Forté customers to Solaris.

> We have no desire to migrate [our leasing application] to Sun Solaris.
>
> JIM KRZESZOWSKI, ADVANTA BUSINESS SERVICES

Staying Put

Forté user Jim Krzeszowski, director of software development at Advanta Business Services Corp. in Voorhees, N.J., said his leasing application is deployed on a combination of Windows NT and IBM's AIX.

Although in favor of the acquisition, "We have no desire to migrate that to Sun Solaris," he said. "As long as Forté remains an autonomous organization, that shouldn't be a problem."

Unless customers such as Advanta would be alienated by Sun pushing Solaris, the company will probably try to convert its newly acquired customer base to its platform, said Tony Iams, an analyst at D. H. Brown Associates Inc. in Port Chester, N.Y. He said Sun's strength is its singular focus on its platform.

But analyst Robert G. Simko at International Technology Group in Los Altos, Calif., said Sun needs to learn from its rivals and embrace Windows NT. The Forté acquisition increases Sun's credibility for Windows NT, and NT is where the money is in the enterprise, he said.

New SGI Chief Sticking With Turnaround Plan

Former CEO Belluzzo said to be joining Microsoft's Internet Group

BY STACY COLLETT

Silicon Graphics Inc.'s new CEO, Robert Bishop, said he will continue with the turnaround strategy laid out by former CEO and Chairman Richard Belluzzo, who unexpectedly resigned last week.

Bishop, who helped build the company's international sales, said SGI still has to execute the plan and "that's where we have some room for involvement and fine-tuning." The new strategy, announced earlier this month, calls for narrowing SGI's focus to its server and visual computing units, entering the broadband Internet market, spinning off its Windows NT and Cray Research Inc. supercomputer units and embracing the Linux system [News, Aug. 16].

Bishop, 56, insisted he's not grooming the Mountain View, Calif., company for an acquisition.

Bill Kelly, SGI's senior vice president of corporate marketing and development, said the company chose a successor quickly because "it was important to preserve the momentum that we have. The company could not afford an extended period of interim leadership."

Some observers said putting a new leader at the helm quickly was imperative. "It was important for SGI not to lose talent because of being leaderless," said Philip Rueppel, an analyst at Deutsche Banc Alex. Brown in San Francisco.

FORMER SGI CEO Richard Belluzzo

Bishop also has experience at SGI. A 35-year industry veteran, Bishop joined SGI in 1986 and helped build its international division. He joined SGI's board of directors in 1993.

Questions are still swirling around Belluzzo's departure to take a non-CEO position at a noncompeting firm. Some industry watchers said Belluzzo will accept the top spot at Microsoft Corp.'s Internet operations. SGI officials wouldn't confirm Belluzzo's plans or elaborate on why he left, but some industry analysts said the prospect of another turnaround try may have been unappealing.

"Things weren't really going the way he had anticipated," said Brian Eisenbarth, an analyst at Collins & Co. in San Francisco. "This is his second plan. The first plan didn't work out, and I think that's why he's leaving."

Belluzzo, a former Hewlett-Packard Co. executive, was named CEO and chairman of SGI in January 1998 and spearheaded a plan to reduce operating expenses and eliminate 1,000 jobs worldwide. The company still struggled to achieve profitability until the most recent quarter, when profits rose to $157.8 million. On Aug. 12, Belluzzo unveiled what he called the "second phase" of the turnaround.

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MARYFRAN JOHNSON

Listen to Mr. Customer

EVERYBODY'S talking about them these days. How to find them. How to serve them. How to keep them. Customers are behind every one of the hottest trends in technology, from data warehousing and online trading to shopping on the Web. But the real business imperative is rapidly transforming into a joining of high tech and high touch, instead of forcing a choice between them. At long last, we're seeing the people through the forest of technology.

Just watch how companies such as ETrade — with its convenient after-hours trading capabilities — will drive its competitors to respond in kind. Check out the way Internet service providers are handing out free PCs to keep the customers coming.

MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at maryfran_johnson@computerworld.com.

Need more convincing? Read our profile in this week's Business section on Ford Motor Co. CEO Jacques Nasser ["Ford's Driving Force," page 48]. The hard-charging Nasser, who personally answers hundreds of e-mails from customers, is determined to use IT to recast Ford's future as an automotive services company. He wants technology-driven services that will turn occasional car buyers into frequent and faithful customers. "If you're going to have a long-term relationship, it has to go beyond just that one product," he told our reporter. "It's got to be services."

Consider also what Home Depot is up to with its latest IT project ["Java Fuels Home Depot Expansion," News, Aug. 23], which supports an emerging line of interior design showrooms. Even more compelling than the plans to roll out an online ordering system for professional builders is the fact that Home Depot slowed down that rollout based on customer feedback. The company listened when the builders talked back, and it decided to do its online catalog right the first time.

Factor into all of this the rising demand for data warehouse specialists ["Looking for Mr. Warehouse," News, Aug. 23], which has IT recruiters scrambling for people with not only technical and business skills, but also political ones like the ability to listen to and negotiate with users.

Sometimes the writing on the wall is more than graffiti. Right now, it's a call to action from your customers. Is your company listening?

DON TAPSCOTT

When it comes to e-business, GM shows it gets it

WHEN GENERAL MOTORS recently announced that it was forming a new worldwide e-GM business group, one of the biggest surprises was the aggressive language some GM executives used. They seemed hell-bent to show analysts that they get it about e-business.

Turning GM into a supple Internet-enabled corporation will be a massive undertaking that is guaranteed to meet with strenuous opposition from employees and dealers. But the executive put in charge of the e-GM group, Mark Hogan, said at the news conference that he would move quickly and decisively. "I am not going to ask for permission; I'm going to ask for forgiveness."

DON TAPSCOTT's *Growing Up Digital* was recently released in paperback. Contact him at dtapscott@tapscott.com.

In case you missed it, the world's largest automaker has just announced it will consolidate all its business development, strategic electronic-marketing, electronic-sales, electronic-product management, technology and operations departments. The company says this "will lay the groundwork to transform GM's traditional automotive operations into a global e-business enterprise."

Hogan had previously gained a high profile by being a chief architect of Project Yellowstone, a "modular" production scheme that would have GM doing only final assembly of vehicles, with large subcomponents built by other companies. The plan was heatedly condemned by GM's unionized workforce.

Many North American auto executives would love an arrangement like Project Yellowstone. They envy Dell Computer's similar system, through which the company custom-builds a computer from brand-name components in response to a customer's order placed via the Internet. The final product is shipped within 48 hours of the order being received. The computer is "manufactured" by the web of Internet-connected partners in Dell's supply chain.

Of course, Dell not only practices a form of modular production, but also cuts costs by selling directly to customers. If GM did the same, thousands of car dealers would see their existing raison d'être largely evaporate.

At the moment, regulations in many jurisdictions prevent carmakers from selling directly to

the public. But Internet-savvy consumers will rebel at laws that guarantee car dealers thousands of dollars of profit simply for handing over a new set of keys.

GM will have no choice but to take charge of potential buyers' online experience. It is finding that close to half of prospective buyers surf the Web for information prior to purchase. Once buyers have the information they desire, GM says it wants the process, from information gathering to car buying, to be "seamless."

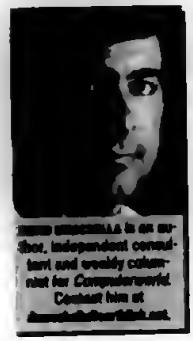
And what is to become of dealers who don't share that vision? As e-GM chief Hogan told one reporter: "They are all businessmen, and some might not go along with that. If that's the case, we will have to part company."

Like their counterparts at Merrill Lynch, GM executives are realizing that companies can compete in the digital economy only by fundamentally changing their business models. ▶

DAVID MOSCHELLA

Will the dot.coms rule? That's not a sure thing at all

READING THE PAPERS these days, it often seems like everyone already works for a dot.com company, or is foolish not to. But, of course, nothing could be further from the truth. Most of us work for businesses that existed long before the Internet became a household word. Thus, especially for IT professionals, the operative question is whether you should jump ship as fast as possible or stick with your current job and hope your company thrives in an increasingly Internet-based world. The conventional wisdom is that many existing pre-Web companies won't make a successful transition.



DAVID MOSCHELLA is an author, independent consultant and weekly columnist for Computerworld. Contact him at [illegible]

IT industry people tend to assume that the pure-play dot.com companies will continue to move faster and more ably than companies that have their roots in the physical world, and therefore they will typically prevail. I'm not saying they won't, but it's still worth understanding why so many of us hold this view so strongly.

A degree of skepticism is especially healthy since, in the IT industry, the track record of the conventional wisdom is actually pretty poor.

Anyone who lived through the early years of the PC business remembers that most informed observers believed that no matter how quick and clever Apple, Compaq, Microsoft and other newcomers were, established giants such as IBM, Digital and Wang would eventually control the business PC market. That's why so many of the initial PC IPOs were viewed more skeptically than today's Internet launches.

Having erred once on the side of caution, the market has now lurched in the other direction, generally believing that no matter what a Merrill Lynch or a Barnes and Noble may do, they will never keep pace with a Schwab or an Amazon. Consequently, every new dot.com start-up is treated like a potential industry titan, capable of overthrowing the pre-Internet order.

But if history teaches us anything, it's that the conventional wisdom is not reliable. Perhaps that is why so much of this particular debate reminds me of that old saw about the generals refighting the last war. For example, if the conventional wisdom is as wrong now as it was with PCs, we will soon discover that the pure-play Internet model is inherently weaker than a hybrid physical/cyber approach and that it is the pre-Internet companies that will typically prevail. This is pretty much what has happened in the biotechnology business where many start-ups have fizzled, while the existing drug and agricultural firms have gone on to successfully exploit biotech know-how.

In the end, the general consensus is often wrong, not because people are stupid, but because events themselves are determined by what a few key individuals actually do and therefore are inherently unpredictable. Four years ago, Microsoft could have sat back and charged $100 for a copy of Internet Explorer and watched Netscape continue to dominate the market, just as Compaq could have decided that it needed to go direct. But one company acted aggressively (if perhaps illegally), while the other buried its head in the sand. There was nothing inevitable about any of it.

In future columns, I will look at precisely why some companies can successfully adapt to radical change while others cannot. But for now, let's just settle upon a middle ground. For most workers, the question isn't whether dot.com companies are great and pre-dot.com companies doomed, but rather how well your particular organization is dealing with change and whether you believe in your company's strategy and leadership. ▶

READERS' LETTERS

Training at IT 'boot camps' is inferior

I BELIEVE that the article, co-written by Barb Cole-Gomolski and Kim S. Nash, about how easy the certification process is ["Critics: Vendor Diplomas Still Too Easy to Acquire," News, July 26] hit the nail on the head.

I am a Microsoft Certified Systems Engineer with more than four years' experience of using the actual products on which I have been certified, and I also instruct IT-related courses for an area community college.

What the so-called boot camps actually do is lower my value and credibility by giving the same credentials to someone with inferior knowledge and skills.

The boot camps do not teach what needs to be known in the real world. It's nice to see there are recruiters out there who see through the smoke screen cast by the overwhelming number of "paper MCSEs." I hope more will follow suit.

Jeff Erdman, MCSE
LAN manager
Topflight Corp.
Glen Rock, Pa.

'Single Guys' article ignored gay populace

IT SADDENS me to think that a magazine that has historically reported cutting-edge news can be so narrow-minded. "Silicon Valley Products: Computer Chips, Internet Start-Ups and Single Guys" [Business, July 19] has got to be one of the most one-sided pieces of material that I have ever read in a national publication.

Let's contemplate this single fact: What if, just maybe, some of those men in Silicon Valley are gay?

I would also like to point out that San Francisco, a city with one of the largest gay populations in the country, is nearby.

Maybe there are more gay men than straight men in your group of 5,000 bachelors.

Armin Molavi
Boston

Valley thrives as a self-contained market

ALLAN E. ALTER missed one very important point in his column ["Has the Valley Gone Over to the Dark Side?" News Opinion, July 26]. Silicon Valley is ultimately a vampire that feeds upon itself.

To a large extent, there is enough of a customer base in the Valley for every company here (even if the customer is just a branch office of a multinational, because that branch office serves as a no-cost distribution vehicle for the vendor). Selling to the outside world is merely gravy.

Bill Barr
Web engineer
Sunnyvale, Calif.
wbarr@cygnus.com

Keep politics out of *Computerworld*

I WAS quite surprised and disappointed to see an opinion column written by Gov. George W. Bush of Texas in your Aug. 9 issue ["Technology and Prosperity: Let Dreams Flourish," News Opinion].

Political rhetoric and campaign promises don't belong in a serious computer magazine. What's next — a column from Al Gore on his invention of the Internet?

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COMPUTERWORLD welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Allan E. Alter, columns editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 875-8931; Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

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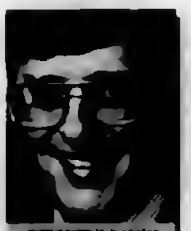
JOHN GANTZ

How ya gonna keep your IT staff down on the farm?

AT THE SOLUTIONS Integrator Forum in San Diego this month, I got to run a panel discussion on hiring and retaining staff. Wow. We touched more than a nerve with *that* topic. We touched a whole spinal column.

My employer keeps stats on the number of openings for IT professionals, and this year there will be more than 700,000 job requisitions opened in the U.S. alone, a number that represents about 20% of the entire IT workforce. Probably half will get filled. The rest will go to outsourcers, go to contractors or go begging. Competition for available people will be intense among the three major employer categories: IT vendors (10% of the workforce), IT services firms (30%) and user organizations (60%). You can bet that those IT firms see user IT staffs as a source of ready talent.



John Gantz is a senior vice president at International Data Corp. in Framingham, Mass. Contact him at [illegible]

They also see them as relatively easy pickings. The top IT firms are way ahead of most IT user organizations in developing recruiting and retention strategies.

The good news, then, is that most IT organizations have lots of ways to improve. Some tips are:

- Maintain hiring and retention statistics. The best organizations get more than 75% of their job offers accepted (the industry norm is about 50%) and have attrition under 15% (20% to 25% is more normal). Understand why people leave.
- Improve your hit rate on hiring, either through more "selling" to candidates by company executives or by running more candidates through the process. The former eats into manager time and productivity; the latter requires investment in human resources personnel. Pick one or the other strategy and go with it.
- Initiate a mentoring program. Chances are you will be hiring more and more college graduates or recruits from other professions, and they will need help getting to know the ropes. Mentoring programs increase both employee satisfactioo and department efficiency.
- Get outside help. About a third of experienced IT professionals are brought in by recruiters. Expect that percentage to rise. In the opper job echelons, some recruiters are beginning to act more like talent agents than talent scouts — that is, representing candidates rather than employers.
- Review and improve your training and education policies. Surveys of recent college graduates in the IT profession indicate that it's the most likely area for expectations to clash with reality. Make the promise — then live up to it.
- Tailor employment practices to the employee. Fifteen- and 20-year-old employment rules woo't hack it for a workforce generally in its 20s and 30s. Younger employees want challenging and interesting work, enlightened managers, more bonus possibilities and even stock options. (I, for one, have learned the hard way to never meotioo pension plans in interviews with potential hires who are under age 40.)

The last, most elusive and most important ingredient in the hiring equation is matching job candidates to corporate and department culture. This was a common theme presented by the panelists in my session, and it's one I hear repeatedly.

This means you have to understand what your culture is — an exercise in itself. You have to be able to describe it as well as, say, Andersen Consulting can. Theo you have to figure how to tell if a candidate will fit, by screening, testing, reference checks and peer interviews. Not easy. But imperative. ▶

MICHAEL CUSUMANO

Making time and decisions on Internet time

IN A WORLD where information, technology, business deals and money seem to flow at the speed of light, how can managers not work 24-hour, seven-day weeks? A reporter at a German magazine asked me this recently. She noted that Europeans have 35-hour work-weeks and six-week vacations and find the pace of the Internet world hard. Because I recently published the book *Competing on Internet Time*, she thought I should know something about managing time. Right? Well, maybe.

Michael Cusumano, co-author of *Competing on Internet Time: Lessons from Netscape and its Battle with Microsoft*, and *Microsoft Secrets*, is a professor at the MIT Sloan School of Management. Contact him at [illegible]

Two things came immediately to mind: the ability and confidence of managers to *recruit top-notch people* and then *delegate critical tasks*.

I say "ability and confidence" because not every organization can recruit the best people in the market. Still, companies should at least hire the very best people they can find and not compromise high standards because of budgets or rapid growth.

Confidence is also an issue because many managers are afraid to hire people smarter than themselves. Having also co-written a book about Microsoft, I recalled that this isn't how Bill Gates operates. He makes incredible efforts to recruit talented people, believing that collecting the smartest people is the best way to assure Microsoft's future.

Not surprisingly, Gates feels comfortable delegating to truly talented managers like company president Steve Ballmer and the other two dozen or so members of Microsoft's informal brain trust. Gates' people enable him to manage time more efficiently.

A third element I thought was important was *the ability to prioritize*. Not everything is equally important. Managers need to decide what they must do immediately, what they can put off and what they can ignore. Again, delegation plays a part. Managers need to see quickly what they must do themselves and what they can ask others to do. But they can make these decisions effectively only after they decide what is critical for them and their organization to do *now*.

These are general points, useful for time management in rapidly changing environments as well as in more stable periods. But in the Internet age, managers must do other things to be effective decision-makers.

Since the advent of the Web, Netscape and Microsoft have clearly seen a need to accelerate the decision-making processes and time frames for senior executives. For example, Microsoft used to hold one major meeting per year to debate strategy, with another meeting six mooths later for course corrections. When Netscape emerged as a serious challenger, Gates and Ballmer switched to holding more frequent meetings of executives, such as once per mooth, to debate strategic issues and make more frequent course corrections. Netscape executives, under former CEO Jim Barksdale, met weekly and reserved one meeting per month for strategy reviews.

Microsoft also relies oo a concept Ballmer calls "pulsing." He explained this as creating an event to force people to take note of the environment and make critical decisions fast. Microsoft did this with its famous Internet Day on Dec. 7, 1995. Ballmer had argued two months previously that Microsoft should orchestrate an event for Gates to announce the company's strategy for the Interoet. At the time, however, Ballmer, Gates and other Microsoft executives were still unclear oo what to do — accept the Internet or fight it with the proprietary Microsoft Network (MSN) approach in vogue at the time and copy AOL.

Within two months, Gates decided to throw away a billion-dollar investment in MSN, "embrace and extend" the Internet and ultimately change the strategy for every major product in the company. This was a smart set of decisions, and they were made "on Internet time" as well.

Let's hope the government doesn't punish Gates too severely for managing his time and thoughts so effectively. ▶

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UNLOCKING THE SECRETS *of* Enterprise Management

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Mastering the Art of Enterprise Management

By Herb VanHook, META Group Inc.

Companies that reap the benefits of enterprise management solutions do so because they employ an implementation and evaluation strategy. They focus on common processes, effective use of technology, and optimized organizational models. But in order to successfully align enterprise management initiatives with real business processes, companies must assign value to their management efforts.

True enterprise management excellence results from an organization's ability to measure its service delivery capability "up front" and then capture the effect of technology integration in their service delivery processes. Many companies approach this "capture the value" effort too late, and are unable to quantify and qualify the effect of management tools upon their operational processes.

But those companies that do recognize the value, tend to focus on multiple results, such as increased efficiencies from process automation, business capabilities preserved through ongoing risk reduction, optimized service levels that map to IT deliverables, and the enablement of new service level delivery mechanisms. By constructing the appropriate metrics to capture the "current state" of these areas, organizations can effectively realize and measure the impact of enterprise management technology.

Companies that focus on efficiency metrics (e.g., reduction of long-term unit cost), effectiveness metrics (e.g., reduction of overall IT complexity),

BMC Software Honors IT Leaders

In the competitive enterprise market, IT professionals must seamlessly link business and technology strategies in order to maximize their companies' productivity and profitability. The 1999 Best Practices in Enterprise Management Award program recognizes those IT leaders who have delivered bottom-line benefits through the successful implementation of BMC Software's COMMAND/POST. The COMMAND/POST family of solutions provides end-to-end, service-level management for ensuring availability to complex, cross-platform applications throughout the enterprise.

BMC Software customers worldwide participated in the third annual event, co-sponsored by *Computerworld*, the newspaper for IT leaders. Several winners of this year's awards are profiled on the following pages and include:

- **Lifetime Achievement Awards: BACS Limited and Ontario Hydro Services Co.;**
- **Gold Award: Siemens;**
- **Silver Awards: Allfirst Financial Inc., Bank of America and Worldspan.**

The winners' success stories represent business and technology practices from which all IT professionals can learn. And although those honored exemplify outstanding achievement in their markets, many other IT professionals are realizing business and IT efficiency through BMC Software solutions. The following comments summarize what some of this year's entrants in BMC Software's Best Practices in Enterprise Management Awards program are saying about their COMMAND/POST implementations.

BANK OF AMERICA

Bank of America, with $618 billion in assets, is the largest bank in the U.S.; the firm's International Data Centre is responsible for the electronic transfer of billions of U.S. dollars daily.

"Our objective was to achieve a return on investment in COMMAND/POST within three years. We more than achieved it in one year."
—Mervyn Gutteridge, senior vice president, Bank of America, International (Surrey, England)

and business alignment (e.g., degree of technology leadership in strategic technologies) are those that stand ahead of the pack.

In addition to selecting technology that has the correct "function fit," remember that much of the role of management technology is to automate existing management processes. Mapping tools to the existing processes should be what drives a company's product selection and assessment.

Companies introducing enterprise management technology into their operational processes as purely an automation vehicle, often find themselves doing extensive tool configuration and customization to meet their requirements. Therefore, an enterprise solution that has a flexible and adaptable nature is usually the wiser choice. It certainly enables the company to avoid the hurdle of "managing the management tool" and, instead, adopt the "managing their environment" position.

Companies that focus on efficiency metrics are those that stand ahead of the pack.

—Herb VanHook, META Group

How do companies ensure that they have indeed adopted the most suitable management tool? Metrics remain the best safeguard: Perform a quick "time to value" and optimal return on investment analysis.

And still, there are unpredictable pitfalls that may derail an implementation of management strategies, such as personnel resources and missing skill sets. But the actual capabilities of selected management tools should be a known entity. Successful implementation of enterprise management tools requires appropriate expectation levels from the outset, followed by careful management—and measurement—of the project to those levels. ▲

Herb VanHook is vice president and director of service management strategies for META Group Inc. in Stamford, CT. He has more than 25 years of experience in information systems, encompassing a broad technical background, with a focus on systems management issues.

Conxus Communications
As a provider of wireless two-way narrowband PCS services in the U.S., Conxus focuses on conventional paging services, voice mail, mobile users and the consumer mass market.

"COMMAND/POST is playing a vital role in providing network alarms with a minimal staff, allowing CONXUS personnel to quickly and effectively resolve problems." — Glyn A. Stanley, project manager, network management systems, CONXUS (Greenville, SC)

Credit Suisse First Boston Corp.
Supporting international, regional, and local banks on the stock market, Credit Suisse funds new businesses and serves as an investment advisor to large organizations.

"The BMC implementation has improved the relationship between the business and IT units. Users became more confident using our group for guidance, and they were impressed with the solution." — John Garfield, AVP communications software (Princeton, NJ)

Public Service Energy & Gas Company (PSE&G)
New Jersey's oldest and largest publicly owned utility, PSE&G serves a 2,600-square-mile area and 2.2 million people.

"Without COMMAND/POST, there would have been a significantly larger staff and multiple managers required to merge network and computer operations. ...The [IT department] is now considered an asset to the business." — Jack Williams, project manager (Newark, NJ)

Worldspan
Major airlines, travel agents, and Web sites rely upon Worldspan to book travel reservations electronically. Its worldwide customerbase totals 17,900 sites.

"The overall perception by customers, both internal and external, is that we are 'in control.' Prior to the COMMAND/POST implementation, the time for IT problem notification was anywhere from 15 to 45 minutes. As a result of the acquired automation, the process now averages 5 minutes." — David Anderson, Communications Coverage & Automation supervisor (Hapeville, GA)

Electronic Funds Clearing House Sees ROI within One Year of Implementation

In the fast-paced world of banking, every minute of systems downtime can cost a financial institution millions of dollars.

That's why U.K.-based BACS Ltd., one of the world's largest automated clearing houses (ACH) of electronic payments, relies on BMC Software's COMMAND/POST enterprise management software to monitor applications and business services, and keep them up and running.

"We recouped the return on capital investment in COMMAND/POST within a year of implementation," says Rodney Inch, who manages all of the firm's operational services as head of BACS' Service Delivery. "The rapid ROI is directly attributable to the economies of scale made possible with this technology in rationalizing the operational infrastructure."

BACS, a $64-million turnovet ACH owned by 16 "members," comprising British banks and building societies, handles almost three billion electronic payment transactions from some 40,000 U.K.-based companies. It also manages the transfer of more than two billion check transactions between participating members. BACS' primary customers are its shareholding banks, building societies and their customers. "Chances are that if you're employed in the U.K., your salary is paid into your bank account via the BACS Electtonic Funds Transfer—EFT service," says Inch.

BACS

Lifetime Achievement Award Winner

"The rapid ROI is directly attributable to the economies of scale made possible with this technology in rationalizing the operational infrastructure."

— Rodney Inch, Head of Service Delivery, BACS

BACS competes in a thriving arena. Inch projects that the U.K.-based non-cash payments marketplace will grow to 16.5 billion payments by 2008, compared with 11.1 billion payments in 1998. To maintain his firm's competitive edge, Inch's Service Delivery division must cost efficiently monitot all applications, servers and the network, both LAN and WAN based, to ensure that agreed service levels (SLAs) are continually met on a daily basis.

46 MILLION AUTOMATED PAYMENTS ON PEAK DAY

Administering such applications and file services successfully depends on a number of variables, such as operating platforms, applications, processes, transaction volume and network traffic—the lattet of which changes daily, weekly or with business cycles and peaks to significant ptoportions at month end. BACS has now processed and cleared nearly 46 million automated payments on a peak day, and this peak is likely to exceed 50 million payments by the end of this millennium.

In BACS' case, the applications run on an assortment of computing platforms. Fot example, a front-end

application called BACSTEL captures information via telecomms and feeds it into the main electronic funds transfer (EFT) application for processing. The EFT system, which runs on ICL Trimetra-SY multi-node mainframes, supports the clearing of both Sterling and Euro payments.

Banks and customers interact with several other BACS applications, including a direct debit amendment-and-cancellation application called ADDACS, check data transfer via a service called Inter Bank Data Exchange (IBDE) and a member-to-supplier EDI automation via a service called REMIT.

BACS also archives EFT service transaction data for seven years, during which time BACS' members need to have access to it. The information is stored on optical recording media running on a DEC VAX/VMS platform. Compaq Tandem S7000 multiprocessor systems operate the telecommunications input to the EFT system as well as REMIT and ADDACS services. Multiple configurations of IBM RS6000 UNIX servers handle the IBDE network.

COMMAND/POST manages the enterprise and provides the end-to-end business views, and Tivoli NetView monitors the network traffic as well as gateways and routers on the corporate WAN. The information from Tivoli is fed into COMMAND/POST to give a single, graphical display of the whole environment.

COMMAND/POST IN THE CROSS-PLATFORM ARENA

After evaluating several enterprise management solutions, BACS chose COMMAND/POST because of its ability to track service level performance across its many technology platforms. "Our business has critical deadlines we must meet each day. We need a global view of the movement of traffic across the computing environment," says Inch. "In the past, all applications ran in a single mainframe environment. Now, applications are on disparate platforms, and monitoring the systems is not as simple as it used to be."

BMC Software's professional services assisted the BACS staff in the implementation of COMMAND/POST, with the project commencing in December 1995. By April 1996 (four months later), they had rolled out the solution into the operations environment, and, as soon as June of the same year, BACS began making the organizational changes that had become possible with the new solution and service focus.

Despite the challenges BACS' IT environment posed, COMMAND/POST provided the flexibility to manage its systems and meet the service levels its customers expect.

— Rodney Inch, Head of BACS Service Delivery

BACS users became productive quickly using COMMAND/POST, says Inch. Other organizational changes involved merging two operational areas into one to match the company's move to centralized management of all services.

A major technological change like the one BACS deployed presents a host of technical challenges. One of those was to connect BACS' ICL-based Job Scheduling System (JCS) to COMMAND/POST. BACS required the link to be able to monitor, manage and report system events and provide automatic operator responses. BMC provided a solution that emulated ICL protocols and integrated them into COMMAND/POST, which "fully monitors the JCS for system and application events, raises alerts and automatically invokes the necessary operator response," says Inch.

BACS also had to have integration between their internal help-desk system and COMMAND/POST for automatic trouble-ticketing and problem escalation. Now, systems events are automatically logged to the help desk and a trouble ticket generated, with the resulting trouble-ticket number returned to COMMAND/POST without the need for manual involvement. In addition, BACS has used COMMAND/POST to automatically retrieve customer data from the BACS optical storage service and deliver the information to an internal intranet Web server for end-user access.

Despite all the challenges that the BACS environment posed, COMMAND/POST provided BACS with the flexibility to manage its systems to meet the service levels to which BACS and its customers have agreed. In fact, Inch is so sure of this technology solution that he states that with full automation of all service and system components, it will help BACS enhance customer service as well as dramatically cut the cost of delivering those services, all with an end-to-end business process view.

And Inch is not finished. He plans to pursue additional benefits, including enhanced graphical views of systems, applications and network components. He also anticipates the ability to proactively manage SLAs. "There are more economies of scale that we will gain through further automation," he concludes. ▲

Ontario Hydro Saves $1 Million and Sparks New Business with IT Plan

With revenue totaling $9 billion in 1998, Ontario Hydro operates one of the largest electric utilities in North America. Forming a virtual web throughout the province, its transmission lines entwine a 29,000-kilometer grid and a 120,000-kilometer distribution system.

But the impending deregulation of the energy market in 2000 will change the dynamics of the utility business in Ontario. Customers will be able to buy electricity from one supplier and ship that electricity using the network of another supplier. And, like its new competitors to come, Ontario Hydro will be able to actively market all of its energy services to retail consumers and businesses located in adjoining states and provinces.

To respond to both the anticipated competition and new market opportunities resulting from deregulation, Ontario Hydro needed to reinvigorate its corporate infrastructure and its IT services.

As of April of this year, Ontario Hydro split into five companies. The three major ones include one to generate the power, one to manage the transmission and retail energy service businesses, and one to manage the buying and selling of electricity. Ontario Hydro Services Company (OHSC) is now the name of the energy services arm. During this transition, much of the IT and telecom infrastructure will be shared. The Telecom Operations Group currently manages this infrastructure. This group oversees several mission-critical systems, including the province-wide electricity grid and a corporate WAN that the business units rely on for day-to-day business processes, such as financial systems.

Ontario Hydro Services Company

Lifetime Achievement Award Winner

"A conservative estimate is that early detection is saving 100 man-hours per day or $1 million annually."

— Aaron Cheng, Manager, Telecom Operations Group, Ontario Hydro Services Co.

Ontario Hydro's IT infrastructure consists of a power protection communication system, a corporate voice network and a WAN that includes a corporate network of 330 Cisco routers connected through an AT&T frame relay service. In total, there are some 20,000 network nodes spread across 400 sites.

In the past, it took several operations centers to manage the diverse technologies. With the convergence of telecommunications and computing, the arrival of client/server applications and increasing competition in the industry, Ontario Hydro needed a more integrated system for IT services.

To meet that challenge, Ontario Hydro created an enterprise management center in November of 1994. The center was to be the focal point for the delivery of all management services by a single operations group. The enterprise management center, called the Information Technology Management Center

(ITMC), went into full operation in April of 1995.

When Ontario Hydro was evaluating management systems in 1994, it looked at five products. The company chose COMMAND/POST because "it had the needed flexibility to integrate with any piece of technology, whereas the other products were focused on SNMP-type systems," says Aaron Cheng, manager of the Telecom Operations Group. This capability was important because Ontario Hydro was trying to build a management system that could take care of many technologies, including microwave and voice systems. "We wanted something that was really open," adds Mark Fukuzawa, manager of the IT Management Center (ITMC).

COMMAND/POST AS THE HUB

COMMAND/POST from BMC Software is one of three anchors in ITMC's computer infrastructure. The other two are Remedy Systems' ARS (Action Request System), which provides a work management database to manage all IT service requests and problems, and HP Openview NNM for SNMP devices. COMMAND/POST is the integration point for events from all systems, including the legacy and proprietary systems. In addition, it filters and correlates events within the enterprise and automatically opens ARS trouble tickets.

Other management systems integrated with COMMAND/POST include Quindar's SCADA system, which is used for real-time alarm monitoring of microwave equipment, Netview/390, Switchview (PBXs) and a SONET management system. A voice response system (Edify) is integrated with ITMC systems to automate the process of creating trouble tickets reported directly by customers over the phone.

Fukuzawa calls COMMAND/POST "an enabler for the ITMC." Most importantly, the product provides the ITMC with the capability to manage a diverse set of technologies. The number of technologies managed by the ITMC rose from 18 in January 1996 to 40 in January 1999, while total operating cost of the ITMC only increased 17 percent in the same period. These cost savings were obtained as a direct result of automation of routine work. Also, new services can be added to the ITMC in very little time. For example, in the spring of 1998, a 1,000-node network was commissioned in only a month and a half.

Ontario Hydro chose COMMAND/POST because "it had the needed flexibility to integrate with any piece of technology...."

— Aaron Cheng, Manager, Telecom Operations Group, Ontario Hydro Services Co.

The implementation of COMMAND/POST as an enterprise management solution has improved Telecom Operations' service delivery in four other ways:

(1) End-to-end, top-to-bottom management. Through the integration of network and systems management, the ITMC can view not only the infrastructure, but also the status of the applications. Having access to the entire enterprise, the ITMC can isolate all problems to the root cause.

(2) Automated service management. Today, the system records every alarm received. ITMC staff then use their customized GUI interface to relate these alarms, pre-define severity levels based on SLA service impact, identify the most likely cause and record a procedural action response. This automation minimizes the time to correct problems.

(3) Satisfied customers. For the ITMC, quality means consistency. Every customer request received by the ITMC is followed up with a customer survey. Internal ITS customers have expressed a significant improvement in service management, specifically having a single point of contact regarding any IT service issue.

(4) Rapid response time. Ontario Hydro employees are also noticing the benefit of improved response time to critical problems. Early detection of WAN component faults, for example, enables quick online correction of the fault or quick dispatch of technical staff to resolve the problem. "A conservative estimate is that early detection is saving at least 100 man-hours per day or $1 million annually," says Cheng.

The bottom-line benefit of the implementation is that the cost of operating the ITMC in 1997 was $1 million less than would have been spent operating the historical management centers.

Throughout the implementation of COMMAND/POST, the ITMC has created a foundation that has ultimately lowered the cost of managing IT and telecom services, and will become increasingly cost effective as additional elements, systems and services are managed by the ITMC. Other benefits of the enterprise management system and its effects on overall service quality will continue to unfold. ▲

Automating IT Support Boosts Response Rate and Saves Siemens $1.5 Million in Staffing

Siemens Group Austria recently faced what could be called an agreeable dilemma. As business more than doubled over the last two years, the $4-billion IT services arm of Siemens AG wanted to provide top-notch technical support to its internal Siemens and external outsourcing customers. The hitch was that it wanted to do so without hiring additional support workers.

To meet its goal, Siemens deployed BMC Software's COMMAND/POST enterprise management software. "Because of the automation and escalation features of COMMAND/POST, we run first-level support at the control center with the same headcount," says Peter Mantuano, manager of Control Center in Siemens' competence center IT and networking (CCN) department in Vienna.

In fact, by eliminating the need for a third shift of workers as well as an additional person during the other two shifts, Siemens has saved some $1.5 million on staffing alone since deploying COMMAND/POST in January 1997.

SIEMENS

Gold Award Winner

"We continue to realize additional savings, and service levels and application availability continue to improve."

— Peter Mantuano, Department Manager, CCN-CC, Siemens Group Austria

This translates into a return on investment within the first year. In addition, Siemens saves $600,000 annually in staff costs. "We continue to realize additional savings," says Mantuano, "and service levels and application availability continue to improve."

CCN's customer-care service and help-desk call center employ some 20 staffers, who support a number of applications running on different hardware and networking platforms:

- Platforms supported include Siemens Nixdorf mainframes, as well as hardware from IBM, DEC, HP, Sun and Intel;
- Networks include Ethernet, Token-Ring, LAN, WAN, ATM and TCP/IP; and
- Supported operating systems include BS-2000, OS/390, OpenVMS, SINIX, HP-UX, Solaris, Banyan Vines, OS/2 and Windows NT and Windows 95.

INTEGRATING THE TOOLS

Mantuano's group uses a variety of network management and systems management tools,

which feed information into COMMAND/POST. The group's network management tools include HP OpenView NNM, Cisco Works, Cascade View, Strata View, Optivity and SCN-View. Sysrems management tools include ServerView, TransView, Live Network Integrator, HP-IT/Operarions and Expose.

CCN supports all divisions and departments within Siemens Austria, as well as about 10 outsourcing customers from telecom, trade, transportation and insurance businesses. In all, CCN maintains more than 30,000 nodes and some 15,000 users. With 7,700 workers using SAP software, eacb hour that the application does not go down saves the company $400,000.

"The worst-case scenario is that all 15,000 users cannot work," Mantuano notes. "Just the lost working time would be $1.2 million per hour. And that's not calculating the loss with angry customers, lost deals and delays of projects."

Siemens chose COMMAND/POST to help it improve response rime through a centralized, cross-platform escalation-management system. The IT provider also wanted to provide 99.8 percent end-to-end application availability (which works out to be about 17 bours of non-working time per year), or, as Mantuano says, "at least to know an error or ptoblem before the customer is aware of it."

> **"COMMAND/POST beat out its competition because of its complete hardware and software platform independence."**
>
> **— Peter Mantuano, Department Manager, CCN-CC, Siemens Group Austria**

MEETING THE CROSS-PLATFORM CRITERIA

COMMAND/POST beat out its competition because of its "complete hardware and software platform independence," says Mantuano. "All other vendors had (and still have) troubles with our wide range of platforms." In addition, CCN was able to use COMMAND/POST to integrate the network management tools that different IT departments use.

"COMMAND/POST is the focal point of our complete IT and communication system," says Mantuano. "Ir provides us centralized, distributed, customized views in any way we need, to provide the best service and support."

CCN can slice and dice its supported envitonments in a variety of ways, including viewing hardware, applications, databases, departments, customers, networks, telephone and communications.

"COMMAND/POST is our single poinr of escalation to inform our first- or second-level support teams," says Mantuano. "We just have to look after one solution and don't have to update escalation routines in bundreds of differenr tools."

COMMAND/POST's remote-access capabilities even enabled Siemens Austria's support staff to enjoy the company's traditional two-week Chtistmas vacation last year, without disrupting the 24 x 7 technical envitonment that CCN's customers require. "The first-level support had to come into the office only twice," says Mantuano. "The rest of rhe time they could enjoy their holidays ar home like everyone else." ▲

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COMPUTERWORLD
THE NEWSPAPER FOR IT LEADERS

Event Automation Maximizes Service, Staffing, Savings for Bank of America

Bank of America, with assets of $614 billion, is the largest U.S. bank and has an international network spanning 39 countries. The bank provides commercial and investment banking services to multinational, regional and major indigenous corporations, and to financial institutions and governments worldwide.

The Bank of America International Data Centre provides data-processing services to 10,000 staff members located in 37 countries, and it must ensure the movement of tens of billions of U.S. dollars daily through payment delivery systems.

The bank decided to move to an enterprise management environment to improve error handling and reduce system downtime through event management and automation. At the same time, the company was looking to consolidate operations platforms, in order to reduce the complexity of applications spanning multiple technologies, while providing a flexible infrastructure that would easily accommodate future business changes.

"At the Bank of America International Data Centre, out main challenge is to manage an increasingly complex set of integrated systems and applications, which are processing billions of dollars, to tight deadlines throughout the day and night," said Mervyn Gutteridge, senior vice president at Bank of America.

Bank of America

Silver Award Winner

Bank of America maintains a centrally controlled and very complex IT environment. Among the company's platforms are IBM and Amdahl mainframes running OS390 and VM; IBM AS/400; DEC Alpha and VAX systems running OpenVMS; Compaq, HP, IBM and Sun Microsystems servers; and numerous PC and client/server applications.

> **"Our objective was to achieve an ROI in three years. We more than achieved it in one year."**
>
> **—Mervyn Gutteridge, Senior Vice President, Bank of America**

PRODUCT & PARTNERSHIP

In the end, the company chose to implement COMMAND/POST from BMC Software. "The end products and vendors were selected on their ability to perform the tasks concerned, as well as for their ability to work with us as a true business partner, not merely as a software retailer," noted Gutteridge.

Bank of America has deemed the implementation a success. The company was able to reduce and reallocate the headcount dedicated to international service management by some 20 percent over a three-year period, while at the same time nearly doubling its throughput. Bank of America saw a return on their initial investment within the first year due to the headcount attrition alone, according to Gutteridge. In addition, any remote COMMAND/POST console is capable of monitoring or controlling all or part of the environment.

Customer-satisfaction surveys have shown improved performance, and, due to the lack of problems to report, the business community requested that monthly customer service level meetings be scaled back to a quarterly frequency. Technology "incidents" resulting in a financial loss have also been reduced by about 90 percent.

The outcome was that the front-line support staff enjoyed a significant increase in first level problem resolution. New responsibilities, such as Lotus Notes and NT administration, and logical security management, have been added. The overall result: Bank of America now has a true enterprise management environment, one based on a flexible, responsive service center with a focus on customer service and staff development that spans technology boundaries.

"Our development and deployment of advanced enterprise systems has given us the edge in providing and maintaining the highest quality service solutions in support of our businesses around the world," said Gutteridge. ▲

High-Availability Solution Makes Web-Based Travel Smooth Sailing

As one of the top three providers of computer-based reservation systems used by major airlines and point-of-sale travel agents, Worldspan needed to ensure its system's uptime and rapid problem resolution to stay competitive.

Owned by affiliates of Delta Air Lines, Trans World Airlines and Northwest Airlines, Worldspan reported worldwide revenues of $637.3 million in 1998. Worldspan is also the reservations Internet booking engine for many e-commerce sites, including Microsoft Expedia and Priceline.com.

Worldspan's IT environment is centered around a real-time Transaction Processing Facility (TPF) host system and several IBM MVS and VM mainframes. The company employs several distributed systems to provide outside customers with access to the reservation data.

In the early '90s, Worldspan created the Communication Coverage and Automation (CCA) group to begin monitoring communications-related issues and exploring solutions. By 1992, after evaluating products from a group of vendors, the CCA group chose COMMAND/POST from BMC Software. Worldspan officials say they started to realize the true power of COMMAND/POST by

WORLDSPAN

Silver Award Winner

1995, when they began using the product's database features to provide technicians with root cause analysis and event correlation. That same year, the company started using the COMMAND/POST system to make entries and run scripts for the verification and resolution of problems. Today, the system derives the root cause for the majority of troubles in the enterprise.

As a result of the COMMAND/POST implementation, the company's business processes have changed dramatically. The majority of the company's network trouble tickets are now generated via system alerts filtered and processed by COMMAND/POST, with real-time updates provided to outside trouble-ticketing systems. Before 1997, those types of clerical duties had to be performed manually.

Prior to deploying COMMAND/POST, numerous native consoles had to be monitored for system performance. Today, a consolidated console greatly reduces that workload, allowing the systems administrators to focus on solving performance issues. In addition, there is now less need to involve the help desk in known network problems. Furthermore, the number of supported remote sites per technician has increased from 150 to 500 over the life of the project.

According to David L. Anderson, Communications Coverage and Automation supervisor at Worldspan, "BMC Software has provided Worldspan with a solution that enables us to manage network problems effectively. They've given us a vehicle to correlate multiple events and identifying the root cause, resulting in timely problem resolution for our customers."

Anderson adds, "When all factors are included, we have achieved more customer accounts per technician, lowered the mean time to repair from 446 minutes to 123 minutes per trouble-ticket average, improved customer satisfaction, trended data for hard-to-find problems and achieved proactive notification to help desks, allowing network technicians time to work the actual problem. Most importantly, we are now able to identify large-scale outages before the contracted network providers do." ▲

"BMC Software gave us a vehicle to correlate multiple events and identify the root cause, resulting in timely problem resolution."

—David L. Anderson, Communications Coverage and Automation Supervisor, Worldspan

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BUSINESS

PROCUREMENT SYSTEM PAINS

Online procurement systems promise huge savings by enforcing negotiated pricing, but early adopters warn not to expect tremendous results in the short term. Rollouts take time, and kinks with suppliers have to be fixed. ▸ 40

SECURITY ISSUES

CIOs often ask the wrong questions about online security, the CIO Institute's Allan Paller cautions. He recommends thinking about how safe you need to be, whether you're improving your security and whether you'd even know it if you got hit. ▸ 46

PRICE BREAKS

Vendors sneak language into contracts that binds users to paying "then-current pricing," which amounts to a blank check, Joe Auer warns. Users should negotiate long-term discounts by showing vendors how much more business they'll get. ▸ 57

INTERNAL MOVES

Frustrated IT staffers can nudge their careers by changing locations or jobs — in the same company. Tyson Foods institutionalized the practice and slashed turnover by more than half. ▸ 54

EURO-TAX

Europeans have to pay a value-added tax on software and other electronic goods, but they can bypass it by downloading stuff from the U.S. European tax authorities are considering several ways to get U.S. companies to pay up. ▸ 41

Y2K INSURANCE

CSA Travel Protection is expanding its line of travel insurance policies to specifically include mishaps caused by Y2K. The policy costs more than twice as much as a normal one, which competitors say would cover Y2K anyway. ▸ 42

ANTISPAM?

The Direct Marketing Association is trying to draw up guidelines on how to do direct marketing ethically by e-mail. But the opt-in policy doesn't go far enough for critics who fear increases in spam. ▸ 41

FOCUSING ON DISTRIBUTORS

A gas-pump supplier saw sales rise after using an e-commerce net to strengthen bonds with distributors rather than avoiding them and going directly to the ultimate customers. ▸ 40

GROUP HIRE

IT staffers can bond into tight, effective teams. But what happens when the whole group is downsized? An IT team in Idaho was hired by Sears as a group, but a Simpson Paper crew wasn't so lucky. ▸ 52

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REVVING UP A NEW FORD

FORD MOTOR CO. CEO Jacques Nasser wants to transform the world's No. 2 automaker into an automotive services company with a heavier focus on the customer. And IT, which he calls "the bloodstream that feeds the business process," is key to his strategy.

48

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Intranet Procurement Systems Work, but Require Extra Effort

Early adopters within corporations undergo a period of adjustment

BY CAROL SLIWA

INTRANET-BASED procurement systems may carry the promise of a huge return on investment by controlling rogue purchasing and enforcing negotiated prices.

But corporations shouldn't expect massive savings to pile up overnight.

Some of the early adopters are finding that the software can take months to roll out, that end users need time to adjust to new browser-based systems and that irritating kinks still need to be worked out.

ROY ANDERSON: John Hancock's current Java-based client is frustratingly slow

John Hancock Mutual Life Insurance Co. in Boston, for instance, started implementing its Netscape Communications Corp. BuyerXpert package more than a year ago. But while small pockets of users began testing the software last November, the first major rollout to 1,200 users wasn't completed until June.

Hancock plans to wait for a new HTML-based version of the client before rolling out the system to the rest of its 3,000 potential users because the current Java-based client is frustratingly slow, according to Roy Anderson, Hancock's director of corporate procurement.

So far, Hancock is offering users eight electronic catalogs from which to buy office supplies and other goods, with more catalogs to follow soon.

On the plus side, Hancock has found that hosting the supplier catalogs on its internal systems hasn't been difficult. On the other hand, the data content the company is receiving from manufacturers still needs to mature, Anderson said.

For example, a supplier often reduces a color to two letters, such as "gr" for green or "rd" for red. The users, however, tend to type out the full word.

"So you can imagine the complaints in search functionality," Anderson said, adding that Hancock is working with manufacturers to provide more complete product and feature descriptions.

Other companies prefer to leave catalog hosting to third parties.

Other Hosts

Federal Express Corp., which has begun rolling out software from Ariba Inc. in Sunnyvale, Calif., on a division-by-division basis, eventually plans to use catalogs on Ariba's online procurement network. That will help FedEx take advantage of its negotiated contract prices. Right now, FedEx is hosting its own catalogs.

Toby Redshaw, vice president of global supply chain integration at Memphis-based FedEx, recommends that companies start with a complex supplier catalog so that any subsequent catalogs will be easier to install.

"It gets you up to speed quickly," Redshaw said, adding that FedEx's first catalog was for desktop computers.

To expedite implementation, Redshaw also suggests that companies organize a team of technical and business staffers and bring in outside help. (FedEx enlisted KPMG Peat Marwick LLP and Ariba.) FedEx rolled out the Ariba system to 6,500 employees and plans eventually to put all of its 175,000 staffers on the system.

Wells Fargo & Co. expects 25,000 to 30,000 of its 100,000 employees to use its RightWorks Corp. procurement package.

Scalability Questions

Wells Fargo Senior Vice President Matthew Graves, who did extensive evaluations of some of RightWorks' competitors' products, warns that it was hard to evaluate scalability issues "without really digging into their code and how they invoke processes, how they've optimized their database."

"You almost have to install it and watch how it runs in your own network before you really understand what they're doing to you," Graves said, adding that the experience Wells Fargo gained testing another vendor's system helped with the RightWorks software. He declined to name the previous system.

"It's a very immature industry with immature products," Graves cautioned, "and there's a huge benefit to just getting started."

MORE ONLINE

For resources related to procurement, such as publications, articles and organizations, visit our Web site www.computerworld.com/more

Extranet Boosts Sales, Customer Service

Gas pump maker's system increases average sale 220%

BY STEWART DECK

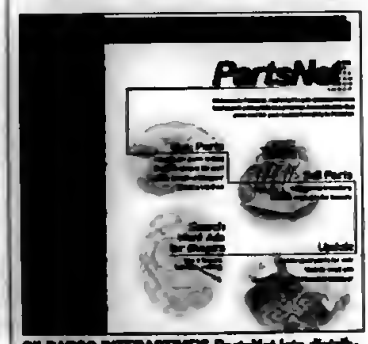
Since 1910, Gilbarco Inc. has been selling gas pumps, pump controllers, point-of-sale systems and other gas-station supplies through distributors. Now it's increasing sales by using its e-commerce system to strengthen its network of distributors, rather than bypass them.

Just this month, Gilbarco added two new pieces to Gilbarco Interactive, a 21-month-old extranet that lets distributors order parts, check on an order's status, look up equipment training data and search through technical documentation.

"We were starting to get swamped with faxes and distributor calls checking on order status and inventory availability," said Valerie Whitfield, manager of strategic systems development at Gilbarco.

So with the help of Rochester, N.Y.-based Questra Corp., Gilbarco put together an Internet-based customer service order management system. "We had pushed our [parts and equipment] distributors to get e-mail, so we figured getting them to take the next step [online] wouldn't be a big one," said Homer Wilson, director of IT at Gilbarco.

That push has paid off. With built-in intelligence in the system encouraging purchasers to increase their orders to reach better discounts, Gilbarco has seen its average order value increase more than 220% since the system went live. And distributors have signed on wholeheartedly: More than 80% of them use the system regularly.



GILBARCO INTERACTIVE'S PartsNet lets distributors sell their excess inventory

The system is built on IBM AS/400 servers, Java, a Microsoft Corp. SQL Server 7.0 database and a beta version of IBM's Java Toolbook, which was "particularly helpful in developing the Web interface pieces," Wilson said.

"This is an example of a forward-looking manufacturer building an extranet to develop its relationships with distributors instead of trying to cut them out," said Jeremy Sharrard, an analyst at Forrester Research Inc. in Cambridge, Mass. By working with distributors through an extranet instead of trying to sell directly to gas stations, manufacturers like Gilbarco help customers feel included in the process which increases system usage and sales, Sharrard added.

The latest editions to the extranet include PartsNet, a section that lets distributors sell their own excess inventory to other distributors, and Online Documentation, a technical documentation area for authorized service technicians.

Stephanie Suddereth, a purchasing agent at Southern Pump & Tank Co., a Gilbarco distributor in Charlotte, N.C., said the system has made a huge difference in ordering parts. "In the old days, when we faxed in an order it might take days for it to be keyed into their system. Now, it's immediately in, and we can check on its status the whole way," Suddereth said. "Order turnaround has really improved."

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Europe Wants U.S. Firms To Pay E-Commerce Taxes

But the EU doesn't know how to ensure tax payments for digital goods

BY PATRICK THIBODEAU
WASHINGTON

THE 15-MEMBER European Union wants U.S. companies that sell software, music or any other products that can be downloaded to ensure that taxes on those items are paid. It's an issue that's being watched closely by the U.S.

European customers of U.S. companies can download electronic goods without paying their country's value-added tax (VAT), which ranges from 15% to 25%, depending on the country. But European sellers of those products are subject to VAT rules.

The European Commission, the policy-drafting arm of the EU, is considering proposals to have third parties such as banks or credit-card companies collect the VAT. Other proposals include requiring U.S. companies to register in EU countries.

But experts said the commission may have already hurt e-commerce efforts when it recently recommended categorizing all electronic goods as services, which would vastly increase the volume of electronic products subject to a tax. The recommendation gives some physical goods an edge.

Conditions

For instance, in England, newspapers aren't subject to the VAT, but if someone subscribes to the online version of the newspaper, that person must pay a VAT. In software sales, the VAT is typically applied only to the value of the diskette or CD-ROM on which the software is loaded. But if that same software were downloaded electronically, the VAT would apply to the actual cost of the software.

"This proposal would actually tilt the playing field against electronic commerce," said Carol Dunahoo, international tax partner at PricewaterhouseCoopers in Washington.

The EU could do little to legally force U.S. sellers to register and collect the VAT. But U.S. companies have some incentives to cooperate.

The image of companies that skirt the VAT could suffer, said Robin Maxwell, director of the European Desk at Ernst & Young LLP in New York. But more important, U.S. auditors may cite any VAT owed to European countries as a large outstanding liability in an audit statement, he said.

U.S. companies may have a

tax advantage now, but the European Commission and other foreign governments may use the tax issue as a negotiating chip in dealing with other matters of importance to U.S. companies, such as gaining international cooperation for copyright enforcement, said Richard Prem, an analyst at Deloitte & Touche in San Francisco. "There are larger issues outside the scope of what's going on," he said.

Critics Say Self-Regulation Effort May 'Legitimize' Spam

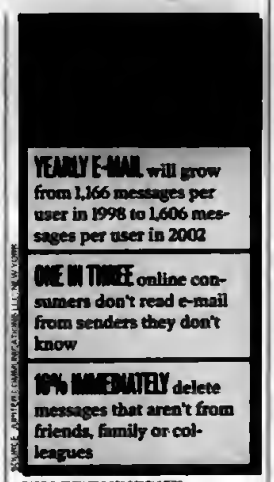
BY DOMINIQUE DECKMYN

An initiative of the Direct Marketing Association (DMA) to self-regulate the e-mail marketing industry is being criticized by some as an ill-conceived attempt to revive spam.

In about two months, the DMA plans to launch its E-mail Preference Service, which mirrors its existing Preference Services for postal mail and fax. Consumers will be able to add their e-mail addresses to the list via a special Web site, and all 4,700 DMA members will have to check their e-mail address lists against this so-called "opt-out" list or risk expulsion, said Jerry Cerasale, senior vice president of government affairs at the DMA.

"I believe the DMA may very well be proposing this because they hope to pre-empt a legislative act," said attorney Harry Rubin, head of the Internet Group at Washington law firm Shaw Pittman. Several bills that would limit unsolicited commercial e-mail are before Congress.

The DMA opt-out list arrives as online merchants appear to



be moving away from unsolicited e-mail. "The norm, right now, is opt-in," when people volunteer to receive information via e-mail, said Ron Frey, Internet research and development manager at catalog retailer Lands' End Inc. in Dodgeville, Wis. With unsolicited e-mail, "there is a risk of turning people off," Frey said.

"If we adopted the opt-in philosophy only, we would remove the ability of 80% of the businesses in this country, which are small businesses, from reaching out to a customer," said Pat Faley, DMA's vice president of ethics and consumer affairs. But Paul Hoffman, director of the Internet Mail Consortium, an industry group, said even small businesses can easily rent opt-in lists from vendors such as Yesmail.com Inc. in Chicago.

"I think [the DMA opt-out list] will increase the spam problem," said Rodney Joffey, an Internet marketing pioneer and founder of direct marketing service provider American Computer Group. "To a large extent, it will legitimize spam." Joffey launched his own opt-out list, SAFEeps, late last year.

A key area of contention is whether the DMA will allow domainwide opt-outs so that businesses and Internet providers can block their entire domains. Antispam activists are demanding that feature. The DMA said it agrees with the principle that businesses can opt out but is unwilling to let service providers block off millions of consumers at once. Negotiations with providers on the issue may hold back the launch of the opt-out list, DMA officials said.

SNAPSHOT

[illegible]

KEY INDUSTRIES	TOP PERFORMERS	MEDIAN RESULTS
Chemicals/pharmaceuticals: Percentage of on-time order deliveries	99%	79%
Time needed to boost production output by 20%	6 days	30 days
Supply-chain costs as a percentage of sales	3.9%	11.2%
Consumer packaged goods: Percentage of on-time order deliveries	98%	81%
Time needed to boost production output by 20%	8 days	42 days
Supply-chain costs as a percentage of sales	4.9%	9.2%
Defense/industrial: Percentage of on-time order deliveries	97%	69%
Time needed to boost production output by 20%	10 days	30 days
Supply-chain costs as a percentage of sales	4.3%	10.2%

[illegible]

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Duty Free: U.S.

- **European customers of U.S. companies that sell digital products over the Internet, software and music avoid paying a value-added tax of between 15% and 25%.**
- **The European Commission is looking for ways to apply taxes to digital goods, but it has settled on no plan.**

Critics Say Self-Regulation Effort May 'Legitimize' Spam

BY DOMINIQUE OECKMYN

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YEARLY E-MAIL will grow from 1,166 messages per user in 1998 to 1,606 messages per user in 2002

ONE IN THREE online consumers don't read e-mail from senders they don't know

16% IMMEDIATELY delete messages that aren't from friends, family or colleagues

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SNAPSHOT

Taking Advantage of the Supply Chain

Companies that focus heavily on supply-chain management can sharply outperform their rivals in key business areas, according to a survey released this month by The Performance Measurement Group LLC. Software can help, it said, but the real key is setting up the right business processes.

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Supply-chain costs as a percentage of sales	4.3%	10.2%

Base: 110 companies worldwide, grouped by vertical industry; the top performer measurements are an average of the top 20% of respondents in each group.

Travel Insurer Offers Plan To Cover Y2K Glitches

Determining cause of thwarted plans key to coverage

BY STACY COLLETT

TRAVELERS who want to make sure they will be compensated if year 2000 problems foil their travel plans now have an ally.

CSA Travel Protection, part of CGU Insurance Inc. in Boston, is offering year 2000 travel insurance in case trips are canceled, interrupted or delayed for more than 24 hours because of year 2000-related problems. The plan covers travel from Jan. 1 through March 12 of next year.

The policy guards against any "unforeseeable circumstances" related to Y2K that can be documented by the media or government agencies, according to Janet Mackie, vice president of specialty products at CGU.

"If an airport in France has to close down because of air traffic communications [problems resulting from Y2K], we're expecting that to be pretty well-documented," she said, explaining that such an incident would be covered by the Y2K plan. "If your alarm clock didn't go off and you missed your flight, it might be a little more difficult" to prove the problem was Y2K-related, she said.

The plan is limited to travel between countries where Y2K compliance is well-monitored, including the U.S., Canada, most of Europe, New Zealand and Japan. Mexico is on the list because the Federal Aviation Administration has been working with airports there to confirm their readiness, Mackie said.

It will be difficult to determine what problems are year 2000-related, but with Y2K attracting so much interest, there will be no shortage of experts trying to determine which glitches are because of the date change, said Walter Andrews, an attorney at Wiley, Rein and Fielding, a Washington-based law firm.

Some airlines have found Y2K a convenient scapegoat for other problems. In June, two airlines in Chicago blamed flight delays on air traffic control systems undergoing Y2K testing. The FAA said the systems were tested in March, and the airlines later conceded that gate agents sometimes used the Y2K excuse for flight problems [News, June 21].

Most of CSA's competitors in the travel insurance business don't cover Y2K risks specifically.

"Anything that's going to be covered now will be covered in the year 2000, whether you call it a Y2K glitch or an airline delay," said Priscilla Hoye Scott, a spokesman for travel insurer Access America Network Inc. in Richmond, Va. CSA's year 2000 travel insurance, at $92, is more than double the cost of its standard flight insurance for a person under 55 years old taking a $1,000 trip.

CSA's Y2K Travel Insurance

Coverage dates: Jan. 1 - March 12, 2000

Destinations: U.S., Europe, Canada, Mexico, Japan, Australia and New Zealand

What's covered: Airline and hotel delays and cancellations that are documented to be Y2K-related

Cost: $92 for a person under 55 years old taking a $1,000 trip

SOURCE: CSA TRAVEL PROTECTION

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SAS

Soft Landing for Embedded Chips?

BY THOMAS HOFFMAN

Embedded chips in oil rigs, power plants and pacemakers might not suffer as many year 2000-related glitches as some experts once feared.

According to new research published earlier this month by Gartner Group Inc. in Stamford, Conn., only a "small percentage" of microprocessors and microcontrollers will experience any date-related problems. And even if they do record a date inaccurately, they won't necessarily shut down altogether.

For example, some microprocessors act as programmable logic controllers (PLC) that were designed to perform such tasks as opening a valve in a heating unit. If the PLC does misinterpret the year 2000 rollover, it might still open the valve but stamp the date incorrectly.

Besides, microprocessors that don't have real-time clocks or aren't connected to devices with real-time clocks "cannot generate a date from thin air," according to the Gartner study (*www.gartner.com/worldy2k*).

And even if a microprocessor is tied to a real-time clock, it may lead to "anomalous processing" but not necessarily an outright failure, said Gartner analyst Lou Marcoccio.

Still, one class of embedded systems, known as Large-Scale Embedded Systems (LSES), appears to be more date-sensitive than less-complex microcontrollers and microprocessors (see chart). LSESs are often PCs used to control factory floors or heating and air conditioning systems.

User testing appears to support Gartner's research. For example, General Motors Corp. has tested 1.4 million devices at its 150 factories and found that it had to make changes in fewer than 15% of its embedded systems, said John Ahearne, GM's communications manager for the year 2000 project.

	[illegible]
Microcontrollers	0.001%
Microprocessors without real-time clocks	About 0.25%
Microprocessors with real-time clocks	About 7%
Large-scale embedded systems	35%

SOURCE: GARTNER GROUP INC., STAMFORD, CONN.

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roll-out

IBM software powers the Goodyear dealer network, turning 1,200 independent businesses into a marketing juggernaut. What can IBM e-commerce software do for you?

IBM software is helping thousands of companies transform traditional business systems into powerful, flexible e-business networks. At Goodyear, a new business-to-business Web site is turning customers into partners and streamlining distribution in an historically tough industry.

The new dealer extranet, called XPLOR, makes Goodyear's vast product inventory visible and available to dealers round the clock. (A big surprise was how much business came in after traditional business hours.) IBM Net.Commerce and DB2® Universal Database™ extend Goodyear systems directly to dealers – and dealer orders directly to Goodyear distribution centers, increasing dealer satisfaction as well as sales.

The online orders are processed automatically as they come in, saving as much as a day vs. the old EDI system, and reducing errors. News of price promotions and sales trends are online instantly. Dealers know what's hot and when they'll have it. IBM and Lotus® e-business software help keep everybody on the same page, and a step ahead of competitors.

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ALAN PALLER

Key security queries

CIOs AND OTHER SENIOR EXECUTIVES often ask two questions as they become engaged in computer security and how it relates to e-commerce and privacy: Are we safe? And how much will it cost to make our systems safe? Those are good questions, but not the right ones.

Three other questions may provide more useful answers for executives who want effective protection:

- How safe do we need to be?
- How are we doing on improving security?
- Would we know if we are getting hit, and what will we do about it?

How Safe Do We Need to Be?

The level of security needed by your systems is determined by identifying the specific threats and vulnerabilities inherent in the storage, transport and processing of your organization's information. By matching security controls to the value of the information and level of risk, you then develop your unique plan for security.

Obviously, there are trade-offs, and sophisticated security plans take a long time to evolve. Concerned organizations don't wait for a grand plan. Instead, as they identify threats and vulnerabilities, they recognize that they probably need to be safer than they are, they identify a set of basic controls, then systematically implement them. The basics are often the simplest and least expensive actions and offer substantial leverage for discouraging intruders. A useful starting point is the list of security best practices agreed upon by security practitioners in dozens of large organizations. It can be found at *www.sans.org* under the heading "Fundamentals of Effective Network Security."

Security can't be fixed in a vacuum.

How Are We Doing on Improving Security?

However you decide what controls you want, the next steps are to measure your progress toward that level of control and to monitor whether it's being sustained once it's achieved.

Most organizations today don't know the state of their security (until the auditors tell them how bad things are), and accountability is usually poorly defined. The combination of lack of knowledge and lack of accountability leads to continued vulnerability and successful attacks.

Fortunately, automated tools are evolving that determine whether basic controls are in place and tell whether systems have been compromised. But most organizations that discover unprotected systems lack accountability for implementing controls. The result: Current vulnerabilities fester, old vulnerabilities re-emerge, and new vulnerabilities creep in undetected.

Progress toward implementing technical controls requires that system and network administrators take specific actions, but they are rarely schooled in security essentials. A person can earn a Microsoft Certified Systems Engineer certificate, for example, without discussing cryptography, vulnerabilities, logging and auditing. Also, system and network professionals are rarely rewarded for improving security.

One approach to ensure that basic controls are in place is to train system and network administrators in security monitoring and administration and boost pay for those who demonstrate mastery.

Equally important is that security can't be fixed in a vacuum. Rigorous configuration management and complete inventories of equipment and processes are essential steps in comprehensive security improvement programs.

Would We Know if We Are Getting Hit?

To know whether you've been attacked, you'll need intrusion detection tools — looking for both external and internal attacks — and you'll need employees to act as sentinels. Good tools exist, but they're not enough.

Of more importance is to have a well-tested incident response capability. That will allow you to respond in an orderly manner to eradicate the problem and get back to work.

The bottom line: Senior management may want easy, quick fixes, but effective security demands continuous process improvement and long-term investments in managing risks, training and automating the monitoring process.

Paller, research director of the CIO Institute in Bethesda, Md., co-authored this column with members of the institute's Security Council. Contact him at AlanPaller@aol.com.

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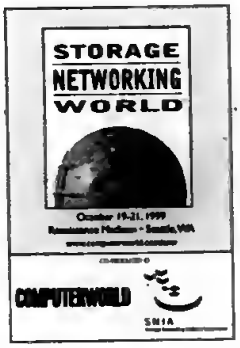

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FORD'S DRIVING FORCE

CEO Jacques Nasser is determined to use IT to transform the No. 2 automaker into an automotive services company

By Kathleen Melymuka

A GROUP OF EXHAUSTED Ford Motor Co. executives had just returned from a grueling trip to Europe and were looking forward to home and a hot shower. Suddenly, CEO Jacques Nasser brightened. "Hey, it's only the middle of the afternoon," he said. "Let's go down to the design studio. We could spend four or five hours!"

"He has boundless energy," says David Cole, director of the Office for the Study of Automotive Transportation at the University of Michigan in Ann Arbor. "The question is, can he pull everybody else in the company with him?"

Nasser has been poking under Ford's hood since his days as a student intern at Ford Australia. Now he's in the driver's seat, bent on transforming the world's second-largest automaker into "the world's leading consumer company for automotive services."

"He feels to the depth of his soul that what he's doing is right for Ford," Cole says.

To succeed, Nasser will have to jettison the company's old ways and use technology to open up communication with its customers: To listen as no car company has listened before; to know its customers so well that it can sense and respond to their needs even before they articulate them; to provide not just cars, but also all their automotive needs.

A Long Road

Nasser's strategy relies heavily on information technology, which he calls "the bloodstream that feeds the business process." And he acknowledges that Ford could use a transfusion. "I'd say in terms of design and engineering, [IT is] quite advanced," he says. "In terms of manufacturing process — average; in terms of logistics/supply chain — out-of-date; in terms of customer interface and data mining — out-of-date."

Nasser cites Wal-Mart Stores Inc. as a model for integrating technology — particularly in driving logistics. "I think they may not even think about it as technology, but that's probably the best of all worlds — when it's ingrained," he says.

Jim Yost, Ford's new CIO, knows what he has to do: "Get faster," he says. "It's up to us to help envision what a relationship with our consumers should look like throughout the life cycle of vehicle ownership and to deliver the process improvements and technology that enable and enhance those relationships."

Stepping on the Gas

For the past couple years, Ford has been in the fast lane. As president of automotive operations, "Jac the Knife" was known for cost cutting and was largely credited with Ford's 11 straight quarters of improved earnings. (It makes about $1,000 more per vehicle than General Motors Corp.) But car sales are down, the European and South American markets are weak and the Internet looms like the sword of Damocles over traditional marketing. Nasser can't afford to cruise.

Since taking the wheel in January, he's put the pedal to the metal. Nasser has rolled out the new Thunderbird; acquired Volvo Cars; hired Wolfgang Reitzle, former second-in-command at BMW AG; acquired Kwik-Fit PLC in Edinburgh, the largest auto repair chain in Europe; acquired an auto parts recycling company with an eye to building a Web-based, worldwide network of used automotive parts; launched the

2000 Mercury Sable on the Internet, personally fielding 300 questions online; and replaced more than a dozen top executives, including the company's CIO.

Grand Prix

Nasser's furious pace reflects the industry's high stakes. Each year, Americans spend $350 billion on new vehicles but spend $600 billion more on aftermarket products and services such as repairs, maintenance and parts. That's why Nasser wants to own the entire vehicle life cycle — and the customer's loyalty — from the design table to the junkyard. "The whole industry has been very much transaction-oriented: Sell a vehicle and hope we never hear from [customers] again until they're ready to buy another vehicle," he says. "We've got to change that. This isn't a transaction; this is about a long-term relationship."

That cradle-to-grave ambition has fueled Ford's recent moves into direct car retailing, post-warranty repairs and service and even used parts. "Our dealers get about 15% of [after-warranty] service work, so there's 85% out there going to someone else," he explains. "That's a part of the value chain that we haven't been involved in before. We think it's important not just as a stand-alone business, but also as a means of continuing a relationship with customers."

Moreover, by hyping Ford's alleged transformatioo from an automotive company to a consumer company, Nasser hopes to share in the optimistic stock valuations consumer companies enjoy — which are typically 30 to 70 times per-share earnings. By contrast, Ford's valuations is only 11 times earnings.

Increasing Velocity

Nasser has used technology to push some design tasks to Ford's key suppliers via an extranet, and his enthusiastic embrace of e-mail has opened his eyes to the Internet's communications possibilities. "My 'Let's Chat' [e-mail weekly newsletter] goes out to 100,000 people worldwide, and it's unfiltered," he says. "I can put anything I want in there, and it comes back in the other direction."

Nasser reads 300 to 400 e-mail responses per week. "It's changed the velocity of our understanding of what's going on in the company," he says.

But it hasn't changed the style. His need to communicate through the ranks has been a hallmark, says David Murphy, vice president of human resources at Ford, who has known Nasser since his days as president of Ford Australia. "I can recall going into work on a Saturday to discover the president in jeans and a T-shirt chatting to the guys on the assembly line about the product and the business. He has carried that through to today" via e-mail, Murphy says. In fact, "He probably is prepared to spend more time one-on-one with people who send him e-mails than I would necessarily advise him to do."

Taking E-Commerce for a Spin

Nasser knows that the same technology that keeps him close to his people can help Ford understand its customers — the final, all-important link in his vision and a connection that's been weak in the auto industry. "I don't see that in the car companies," says John Jordan, director of e-commerce research at the Ernst & Young Center for Business Innovation in Cambridge, Mass. "They are not listening."

But Nasser has seen how the Internet can drive the customer right into the design studio. "The Mustang team has gone online and talked to customers and got direct feedback on features, likes, dislikes, what's going on with their product," he says. "To me, that's where technology can be very, very important."

FORD MOTOR CO.

Here are the divisions that make up the $144 billion auto manufacturing giant:

- Ford Automotive: Ford, Mercury, Lincoln, Jaguar, Aston Martin, Mazda (minority interest), Volvo Cars – $118 billion in revenue, not including Volvo
- Ford Credit – $19 billion
- Visteon Automotive Systems (systems and component manufacturing) – $18 billion
- Hertz (controlling interest) – $4 billion

THE NASSER FILE

NAME: Jacques Nasser
TITLE: President and CEO, Ford Motor Co.
AGE: 51
YEARS WITH FORD: 31 (began as a student intern)
CITIZENSHIP: Australia
FAMILY: Married, four children
CEO ROLE MODEL: Jack Welch of General Electric Co. "CEOs have to be measured on results, and Jack Welch stands way above everybody else in that regard."

He says direct interaction with customers will help Ford develop the intuitioo it needs to anticipate their needs.

The recent acquisition of Kwik-Fit has shown him other ways technology can tie a company to its customers. "They've probably got the best customer assistance center that we've seen anywhere," he says. "It's all tech-based. They take calls, and they know exactly what the customer profile is. They know they're coming up for a new battery or new tires. They know their insurance situation, their financing situation. It's helping connect a lot of these different businesses that previously were really separate businesses."

That's exactly what he wants to do with Ford, but it will take more than technology. Ford dealers, traditionally the custodians of customer information, will have to hand it over, and many of them feel squeezed between Internet sales and Ford's new retail business. But Nasser is convinced they will see that there's no other way. "What's threatening is that the world is changing, not that we woke up one day and decided to be involved in retail distribution," he says. "Longer term, I think we own the customer, frankly, because we've got the capability of having the customer database."

Anyway, he says, electronic business isn't a choice for Ford. "If we did nothing, most likely you would have a tremendous restructuring in the distributioo area in any case, because consumers are demanding it. And we and our dealers would lose control of that process."

He'd rather see Ford in cootrol of an integrated network based on customer service rather than product. "If you're going to have a long-term relationship, it has to go beyond just that one product," he says. "It's got to be services, [and] it makes sense to he able to go across the brands, as well."

Getting in Gear

Nasser is clearly thinking about the technology to support his revolution, but many customer-centric aspects are barely on the drawing board. "I don't see that Ford has a real big-buck Internet effort going," Jordan says. "They have to listen [to customers]. And if Ford doesn't, you know Honda or Toyota is working oo it."

And Wall Street cautions that calling Ford a consumer company doesn't make it so. "Wall Street will always perceive Ford as a car company," says Mike Ward, an analyst at PaineWebber Inc. in New York. "The prospect of Ford trying to change its perceptioo on the stock market to a consumer company is ludicrous."

Still, Ward says there's a lot to Nasser's vision. "I think internally [Nasser's] goal is to get the company more focused on how they treat the customer and all they're leaving oo the table," he says. "There's a lot more they can get from a revenue-and-earnings standpoint, so from that point of view, it's an excellent strategy."

Nasser's toughest battle may be with corporate inertia. "Large companies can't move fast," says Cole, who likens Ford and Nasser to "the classic immovable object meeting an irresistible force."

Whether Nasser's force is irresistible remains to be seen, but those who have worked with him are believers. "Jac has beeo training his whole career for this," says former CIO Bud Mathaisel, "and we haven't begun to see what be's capable of yet."

Changing With the Times

"Paradigms are changing, so we have to change," Ford CEO Jacques Nasser says. Among his most obvious changes has been an intense shuffling of top leadership at Ford – most recently July 1 in information technology, where he replaced CIO Bud Mathaisel with Jim Vest, former executive director of corporate finance.

"If he finds a software or hardware or a lack of energy to do a given task, they're out," says David Cole, director of the Office for the Study of Automotive Transportation at the University of Michigan in Ann Arbor. "He's done that quite regularly."

Nasser's shake-up of the top ranks has received some mixed reviews from industry watchers, who have compared his overhaul team to the "whiz kids" of Ford's golden era under Robert McNamara in the 1960s. Top execs have come from outside (BMW and DaimlerChrysler) and way outside (General Electric Co., Whirlpool Corp. and The Wharton School at University of Pennsylvania). GM, in contrast, is still led almost exclusively by "Mars."

"We think it's healthy for us to look at people who were brought up in different industries, particularly industries that are closer to the consumer," Nasser says.

Despite that view, Vest is an insider. He's known Nasser for years and served as director of finance in Europe while Nasser was CEO of Ford Europe. And he's closely in Nasser's wavelength. "Information technology — the Web in particular — has put the customer in the driver's seat," Vest says. "And as a consumer company, Ford believes that's exactly where our focus should be."

— Kathleen Melymuka

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For Sale: One IT Staff

Downsized IT departments can sell themselves as a group to new employers, but it takes marketing, networking, hard work and luck

By Christine Willard

MANAGEMENT'S good news about a merger that just went through often translates into bad news about moving the entire IT department somewhere no one wants to go.

But rather than updating individual résumés and scattering to find new jobs, two information technology departments set about staying together — changing companies without changing teams. With luck, it can work out all around. But it doesn't always.

Consider the lucky: Sears, Roebuck and Co.'s Boise Technology Center would have been set up in Austin, Texas, if the retailer's IT department hadn't heard about an IT group determined to stay in Idaho.

The unlucky: Simpson Paper Co.'s staff unfortunately couldn't find a connection that would keep them local and together in Redding, Calif.

BOISE TECHNOLOGY CENTER'S Linda Weis and Jim Witt spearheaded the successful effort to market their banking merger-constricted IT department to Sears, which wanted to locate a technology center outside of the Chicago area

Sears

Now staffed by 150 IT employees, Sears' Boise center started with about 25 former employees from First Bank Systems. When US Bank merged with West One Bank in 1995, its department was downsized from 70 employees to about 40. A year later, another merger, with First Bank, gave the department the choice of moving from Boise, Idaho, to Minneapolis or Portland, Ore.

"We already knew how to work together as a team," says Linda Weis, now the center's director. A transplant from downtown Chicago, she says that she, like her co-workers, loves living in Boise. Everyone wanted to stay there.

They started looking for a company that would hire them as a group. They passed the word to personal contacts and followed up on companies that expressed interest. The staff met at a food court every week for updates. But most companies, like a Chicago bank they presented themselves to, couldn't make it work.

"They couldn't figure out how to structure the work at a remote location," says Jim Witt, resource manager.

Then, someone on the Chicago bank's staff mentioned the proposal to a friend who worked at Sears. He knew Sears was planning to locate a technology center away from the Chicago headquarters and had already acquired a site in Austin.

Management was interested enough to invite Weis, Witt and another project manager from First Bank to Chicago for a week of meetings to investigate areas such as the impact of year 2000, how long the shortage of IT workers would exist and what the group's mission would be. The group put together a report for Sears' executive committee.

In the end, Boise, with a ready-made staff, looked better than Austin, and Sears decided to locate its facility there.

The three First Bank managers worked closely with Sears to map out the skills needed and to hire the remaining 20 or so First Bank co-workers for jobs. Sears sent a recruiter to Boise for nearly a year, to set up relationships with local colleges and a training program for entry-level personnel. The program has produced 28 graduates for the center thus far. Since then, many of the original 70 bank employees have gravitated to the center.

"We took on several other friends as well," Witt says. "It was a win-win situation for all of us."

It worked out because Sears had been planning to open a new center when it heard about the Boise group. Companies expanding into new markets or setting up business units and departments would also be candidates for hiring whole groups, but those that simply have long lists of open positions probably wouldn't be.

Simpson Paper

Luck and networking didn't connect Simpson Paper IT employees with a new employer when parent Simpson Investment Co. in Seattle decided to get out of the paper business in 1996.

"About a week after we got the notice, we were kidding around in the office about how we'd have to find someone to come in and hire all of us," recalls Renee Anderson, a project manager at Simpson's remaining small office, who is putting the final touches on the closure. "I thought about it all night."

When she got back to work the next morning, she was ready to take the idea seriously. The company encouraged the IT workers to look for a new employer together. They became Team 2000.

Despite enthusiastic marketing efforts, they didn't find any company willing to let them work from Redding. Although their efforts didn't work out as they'd hoped, "it was an extremely positive effort," Anderson says. "We learned a lot about marketing. And we really bonded. Later, we all helped each other find jobs."

Eventually, most of the employees left the area for jobs at the Seattle office or at other companies in California and other Western states.

Anderson recommends putting together a total package to present skills clearly and negotiating as a unit. Civic and local government can play a part. Boise's Chamber of Commerce helped the First Bank employees by providing information about the area to Sears and helping to "sell" the location — which isn't the first to leap to high-tech minds.

Close working relationships can carry over into the marketing effort. "There's more and more networking going on," Witt says. "The IT community's pretty tight."

Her advice: Get the word out, work hard and then get lucky to make the connection to a company that needs your skills and is willing to work with your department to make it happen.

Willard is a freelance writer in Los Osos, Calif.

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GET PROMOTED

If you're looking for a career move that offers new roles, responsibilities and skills, look no further than your own company By Leslie Goff

"A RELATIONSHIP . . . is like a shark. It has to constantly move forward or it dies. And I think what we got on our hands is a dead shark."

—Woody Allen (as Alvy Singer) to Diane Keaton (as Annie) in Annie Hall *(1976)*

If, career-wise, you're feeling like a dead shark in your informatinn technology organization, look no further than your own company to get swimming again.

Many IT professionals are finding plenty of forward mntion in waters close to the shore: Their companies are recognizing the value of translocating IT staff — moving them into new roles, with new responsibilities and technical challenges.

Employees who move around within their nrganizations say they stay challenged, feel fulfilled and develop a sense nf loyalty to their nrganizatinn. And IT managers who have adopted the practice say it has increased both staff retention and IT effectiveness.

"It really creates breadth in an individual," says Karen Madison, human resources manager for IT at Corning Inc. in Corning, N.Y., where translocation is part of the culture. "Acquiring best practices from a number of different assignments," she adds, "is a great way tn better your effectiveness and [is] a great career builder."

For Tyson Foods Inc., translocation is a critical component nf a retention strategy that has reduced annual turnover from 14% to 6%, says Gary Cooper, CIO and vice president of MIS at the Springdale, Ark.-based company.

"We must have a long-term strategy to recruit, train and move people around the nrganization, and have valuable team members whn are experienced and know the business," he says.

Creating technology-business hybrids was the goal when Tribune Co. in Chicago implemented a fnrmal job-rotatinn plan, the Technnlogy Leadership Development Program. Strengthening the company's technical competence in the business units was essential to its future, says Sharon Mandell, vice president and chief technology officer at Tribune Interactive.

Employees interested in shifting intn a new role should identify areas where they can make an impact and approach their immediate manager with their ideas.

Don't skip any links in the management chain, advises Brian Anderson, vice president and general manager of the San Francisco nffice of Personnel Decisinns. And if a company doesn't already practice job translocation, be prepared to help cultivate a new perspective, be adds.

"Managers know the pain of losing top talent, even if it's to the department across the hall," Anderson says. "So if

your company is not doing it now, it really requires a cultural change."

Here's a look at how movement within a company has advanced the careers of three IT professionals:

1 Carla Woods
manager of enterprise operations, Tyson Foods

Years at the company: nine

Jobs held (responsibilities) before current position:

- Programmer (Cobol reporting), payroll and human resources
- Middleware applications development team (business analysis, software design and training, Digital Equipment Corp.'s ACMS, VMS-based middleware for client/server environments), purchasing/materials management
- ACMS administrator (release management and change control)
- Project manager for a Hewlett-Packard Co. OpenView project (implemented automated management of Tyson's computer systems)
- Manager of disaster recovery (systemwide)

Job that was the biggest change: The OpenView project. [Gary Cooper, Tyson's CIO] plucked me out of my ACMS job for that one because he said he needed someone tenacious. It was a very good opportunity.

Biggest challenges: They've been more with the people relationships — for example, convincing people of the change with OpenView. Some people were threatened by that in the beginning because ... they thought they would be replaced by the system. Moving into my current position was a challenge because the man who came to work for me had been in IT for 17 years and had been the data center manager for six years, so it was a big change for him. Before, we both reported directly to Gary ... and now he was reporting to someone between him and Gary. We've worked it out well, but in the beginning there was a big period of feeling out ... "How is this going to work?"

Lesson learned: It's better to be honest and direct and cut to the chase than try to be overly sensitive to people's feelings and skirt the issue.

Job satisfaction: I told them years ago I have a low threshold for boredom. They always have a problem for me to attack, something new oo my plate. When you're happy, you don't go looking, even when others come recruiting.

Advice to a would-be job mover: The fruit is at the end of the limb, and you have to go out on the limb to get it. If you want a new challenge, you're probably an ambitious person, and you would be valuable to any team. I can't imagine a manager wanting to hold someone back if they're unhappy — happy people do a much better job than frustrated people.

2 Nedra Plonski
project manager, Tribune Media Services, Tribune Co., Chicago

Years with the company: three years, 11 mooths

Jobs held (responsibilities) before current position:

- Desktop computing consultant (researching impact of Windows 95 rollout oo end users, developing recommendations as well as desktop and LAN support)
- Senior consultant, Tribune Technology Learning Center (established end-user training center)
- Member of Tribune's Technology Leadership Development Program, including three six-month projects and two three-week assignments in Tribune's interactive, education, broadcasting, publishing and media services units

Motivation: I had been in applications development, and I was more interested in the business end of things and moving up in management. This was a chance to open my horizons ... to understand all the areas of Tribune's operations, keeping the technology focus but learning the business issues.

Career Path Choices

96% of IT staffers would remain with their current employers if they had a clear understanding of their career path.

SOURCE: 1999 SURVEY OF IT PROFESSIONALS BY PERSON NEL DECISIONS INC., A HUMAN RESOURCES CONSULTING FIRM IN MINNEAPOLIS

Career path before the program: I didn't see my career going anywhere. [Laughs.] I saw myself with a lot of potential, but sometimes it's hard to become visible and make your way up through the management ranks. So the rotation program was like a hand reaching down and saying, "Go, do your stuff."

Biggest eye-openers: The increase in visibility was incredible. We reported directly to [Jeff Scherb, Tribune's chief technology officer]. We had to make presentations to executive committees. And there was a big change in the level of expectation — we were expected to be superior performers.

How to deal with increased visibility and expectations: The key was developing a sense of teamwork among those of us in the program. We also had executive mentors. But for day-to-day survival, it's more appropriate to go to your peers and use mentors for more strategic things.

Change in perspective: I would have always thought of myself as a corporate IT type. Now I don't — I understand the issues relevant to specific business units. I have a global view with the ability to apply it locally.

Job satisfaction: When they're willing to invest in me, I'm willing to invest in them. It's like I just got a master's degree in Tribune. I feel I can move much more effectively and quickly within Tribune than I could by leaving.

3 John Plummer
IT division manager, Steuben division and Corning Museum of Glass, Corning Inc., Corning, N.Y.

Years with the company: 13

Jobs held (responsibilities) before current position:

- Applications developer (PL/1, Assembler, Cobol, RPG), Consumer Products division plant, Green Castle, Pa.
- Database analyst (Computer Associates International Inc. Datacom mainframe database), Consumer Products division plant, Green Castle
- Database administrator (Datacom), corporate IT, Corning
- Team member and later manager, Decision Support and Executive Information Systems (building data warehouses before they were called data warehouses), corporate IT
- Information Resources Management group leader (a group be created and spearheaded to plan, deliver and manage Corning's data architecture), corporate IT
- IT transfer manager (planning and managing the separation of IT systems associated with the sale of Corning's Consumer Products division), corporate IT

Common thread: In each role, I've been interested in making sure IT is an enabler and that employees have the quality information they need to make decisions. In function, responsibilities and technology, I've had tremendous diversity — the techniques and skills for each role have been different.

How to request a move: It's about looking for opportunities and framing things in such a way that management understands you are looking for an opportunity to help the company — that it's not a self-serving venture, it's collaborative.

How to design your own job: I spent a lot of time researching the issues and looked at the costs and benefits. I also did benchmarking studies with other companies. I did a lot of research on my own time, and I joined associations — I got involved with people who were becoming the experts in tbe field. Then I submitted a 15-page proposal that I wrote on my own time.

Motivation: I believed it was important. And it was fun. I certainly felt the normal fear and trepidation associated with presenting something new, but you have to take some measure of risk.

How to determine the next right move: Spend time with coaches and mentors. [Having them] is a really important part of development, and you can't wait for someone to volunteer or assign you to someone. They should be ... people who have been where you're trying to go. Talk to them about what the organization needs, what they see as the next IT requirements. Then look at whether there's a void you can fill.

Job satisfaction: Because I play an active role in shaping my career, I feel a tremendous connection to what I do for Corning. If you place your development and career growth and potential in the hands of others, you should be satisfied with only achieving a degree of success. And success is measured not only in dollars and cents, it's measured in fulfillment, and I feel very fulfilled by my job.

> [Look] for opportunities, and [frame] things in such a way that management understands you are looking for an opportunity to help the company.
>
> JOHN PLUMMER, CORNING MUSEUM OF GLASS, ON HOW TO REQUEST A JOB MOVE

Goff is a freelance writer in New York. Contact her at lgoff@ix.netcom.com.

Agile Manufacturing

BY JACQUELINE EMIGH

IN 1991, agile manufacturing, a flexible way of creating a product while keeping the customer involved in the process, debuted as a conceptual framework for efficient manufacturing and greater productivity.

The overriding strategy supporting agile manufacturing is mass customization. "The key is to be able to respond to the individual needs of customers, while still engaging in mass production," says Steven L. Goldman, an Andrew W. Mellon distinguished professor in humanities at Lehigh University in Bethlehem, Pa. "The basic idea [in mass customization] is to get the right product to the right person, at the right time," echoes Peter G. W. Keen, author of the book *Every Manager's Guide to Business Practices*.

Agile manufacturing also takes advantage of strengths in information technology. "Earlier production didn't require IT, although IT was used," Keen says.

Key IT enablers for agile manufacturing strategies include enterprise resource planning, product data management, object technology, supply-chain software and intranets and extranets.

One-on-One

Thanks to global networks and telecommunication capabilities, businesses can deal with customers and suppliers on an individual basis, says Roger Nagel, a senior fellow at Enterprise Systems Center, a Harvey E. Wagner professor at Lehigh and former executive director and CEO of Lehigh's Iacocca Institute.

"We now see employees sharing data across the world, examining everything from engineering drawings to legal documents on two-way, PC-based video and data conferences," Nagel says. "Similarly, senior executives are using these same means to reduce the costs of managing global businesses and in nurturing relationships with clients, partners and suppliers."

DEFINITION

Agile manufacturing is a conceptual framework for more efficient manufacturing, which is now resulting in mass customization. This high-quality yet flexible way of producing goods involves both the manufacturer and the customer.

What Is Agile Manufacturing?

According to the Iacocca Institute, agile manufacturing is defined as:

"The ability to thrive and prosper in a competitive environment of continuous and unanticipated change and to respond quickly to rapidly changing markets driven by customer-based valuing of products."

Numerous industry groups have since elaborated on that definition. In another report, the Sandia National Laboratories enumerates "common elements of agility," including:

1. Changes in business, engineering and production practices
2. Seamless information flow from design through production
3. Integration of information technologies into product development and production
4. Application of communications technologies to enable collaborative work among geographically dispersed product development team members
5. Introduction of flexible automation of production processes

GLOSSARY BOX

- **Mass customization:** The ability to customize products in quantities as small as one, while manufacturing at mass production speeds
- **Modularization:** A manufacturing model that supports mass customization by structuring products as a series of mix-and-match components
- **Enterprise resource planning (ERP):** A software system aimed at maximizing the use of corporate resources like finance, accounting, purchasing and human resources
- **Product data management:** A software system for secure storage and distribution of product information such as engineering drawings, production schedules and marketing plans

The major catalyst for agile manufacturing was the rise of overseas competition, particularly from countries like Japan and Germany. Under pressure from Congress to award weapons contracts to U.S. manufacturers, the Pentagon turned to the Iaccoca Institute for thoughts on how to help increase industrial efficiency and productivity.

After convening more than a dozen top U.S. manufacturers, the Iacocca Institute issued a report in 1991 outlining a long-term vision for agile manufacturing.

"Essentially, manufacturing needed to become a service," Goldman explains. Companies trying to compete on manufactured products alone were getting undercut by competitors offering similar products at lower prices. Services, on the other hand, could be sold at much higher value.

And if you take the opportunity to insinuate service into a product, Goldman says, you'll have better luck holding on to your customers. Services that have shown success include timely delivery, as well as giving customers the chance to personalize products by choosing from a list of options, Goldman says.

"Even as far back as five or six years ago, American manufacturing looked like a disaster zone. Today, though, U.S. productivity is comparatively very good," Keen notes. Big practitioners of agile manufacturing include General Electric Co., Ford Motor Co., The Boeing Co. and Caterpillar Inc., Goldman says.

Modularization is another way of doing agile manufacturing. It involves building products from components. Customers can then pick and choose the components that will appear in the items they purchase.

GE was one of the first companies to pursue modularization. "In the mid-1990s, GE's locomotive division was in the doldrums," Goldman recalls. Then GE began selling railroad car "components" in a choice of color combinations, a tactic that turned out to be a big hit with the division's mainly overseas customers. At the same time, the locomotive division cut its time to market roughly in half.

Modularization is supported by business strategies like concurrent operations, in which company divisions such as manufacturing, design and marketing work collaboratively, often sharing things like product ideas and production schedules over IT systems — product data management, for example. Increasingly, concurrent operations are being extended outward to partners like suppliers and subcontractors through technologies such as supply-chain software and Web-based e-commerce.

Caterpillar took the notion of modularization one step further by replacing the 80-page manual previously used for configuring its earth-moving equipment with a software-based product configurator.

Another model within agile manufacturing is virtual manufacturing, which means a company doesn't do all its own manufacturing. Instead, it outsources some or all the work to subcontractors. Most car companies are adhering to the virtual manufacturing model. That allows the car company to focus on services like product design and marketing. "Car companies have become auto assemblers, as opposed to auto manufacturers," Goldman says. DaimlerChrysler is already manufacturing less than 30% of the parts used in its cars; Volkswagen AG, less than 12%.

Toyota Motor Corp. is looking at "the five-day car" and possible sales of autos over the Internet. U.S. manufacturers are feeling pressure to reduce their current production cycle of about six weeks to one week or less.

So one of the latest trends is to further speed up time to market by outsourcing not just the manufacturing of individual auto components, but also the assembly of multiple car parts into subassemblies.

Emigh is a freelance writer in Boston.

MORE ONLINE

For more information on agile manufacturing, visit our Web site.
www.computerworld.com/more

Are there business terms you would like to learn about in QuickStudy? Please send your ideas to QuickStudy editor Stefanie McCann at stefanie_mccann@computerworld.com.

JOE AUER/DRIVING THE DEAL

Start negotiating, end 'then-current pricing'

IT CAN BE FOUND in every vendor's standard form contract: the "then-current pricing" statement. All that verbiage can be summarized in just five words: "Thanks for the blank check." Then-current pricing normally applies to a customer's future purchases, additions to equipment maintenance contracts, future software maintenance or optional consulting services. With it, vendors can pretty much lock io higher prices for future deals and, at the same time, negate any discounts given to win the initial business.

Let's eliminate then-current pricing and similar "we'll work out the details later, partner"-type nonsense from our deals. We're better off negotiating future price-and-service agreements before the deal is signed — while there is maximum leverage.

Of course, vendors don't want to give away future discounts unless they have to. The best tactic is to ensure vendors that winning the deal oow is contingent on their willingness to provide guarantees of good deals downstream.

Stress to the vendor that agreeing to a discount structure now also increases the poteotial for more business later. The vendor's sales and administrative costs will be lowered, and those lower costs can be passed back in the form of discounts. This approach works well where unit pricing is used, as with products, but is more difficult to impose wheo pricing services. However, future discount models should always be explored during oegotiations.

Sometimes a discount structure can include a provision reading "the lesser of." This sets up a number of scenarios where the customer will pay the lowest price. These low prices could be tied to many different factors: a predetermined discount, a cap in escalating market items, the supplier's then-best price for similar transactions, an outside indicator like the Consumer Price Index to influence the price algorithm, matching a competitive bid, or other appropriate calculations.

If the vendor won't provide future pricing discounts, here's a fallback position: Replace then-current pricing with language stating that future purchases will be at "mutually agreed pricing." Of course, this is less desirable for the customer, but at least the supplier then is in the position of agreeing to future negotiations, which is much more desirable than you handing over a blank check now.

The 'We've Been Acquired' Excuse

Another vendor excuse has come about because of merger-mania: the "we've been acquired" ploy.

Recently, a company I know of was renegotiating a software deal. The original deal had been done using the customer's enterprise software license agreement, not the supplier's standard form agreement. As negotiations progressed, the vendor agreed to roll over the existing license terms and conditions for another three years, and the customer was hammering on the vendor for an aggressive discount structure based on past and future purchase volumes.

JOE AUER is president of International Computer Negotiations Inc. (www.dobetterdeals.com), a Winter Park, Fla., consultancy that educates users on high-tech procurement. ICN sponsors CAUCUS: The Association of High-Tech Acquisition Professionals. Contact him at joe@dobetterdeals.com.

Surprise! As a response to the customer, the supplier announced that it had been acquired by another software firm and stated that all discounts of more thao 20% were being suspended until completion of the acquisition. As a result, it would be necessary for the customer to accept a 19% discount, far less than what it was requesting.

The supplier knew the customer was dependent on the software and needed to deploy it on new computers being installed. This response was seen as a way to blow off giving significant discounts and to lay the blame on the acquiring company.

The customer had no relationship with the acquiring company, which is notorious for imposing its less-than-favorable terms on unsuspecting customers. Predicting their oew vendor would more thao likely dump the current sales team in favor of its own, the customer approached the acquiring company directly.

The customer started by saying, "We're eager to have you as a supplier and get our relationship off to a good start, but the sales team is stonewalling us."

The acquiring company quickly installed a new sales team and closed the deal at a substantial discount for the customer in excess of 20% and under the existing terms and conditions. (It also helped that the customer had a name that is recognized around the globe.)

Once again, we're reminded that being resourceful, determined and pressing on, despite hearing a few nos from your supplier, is necessary to get a good deal.

WORKSTYLES

What It's Like To Work in IT at Toyota

Interviewee: Barbra Cooper, CIO and group vice president, information systems
Company: Toyota Motor Sales USA Inc.
Main location: Torrance, Calif.
Number of information technology employees: 340 permanent staff, 250 contractors and just under 50 year 2000 contractors
Number of employees (and users): 8,500 nationwide employees, plus 1,400 dealerships; dealerships are franchises, but Toyota supports systems that are used to communicate with the company, such as sales reporting, warranty information and parts ordering systems.

TOYOTA'S BARBRA COOPER

How most employees get to work: "Drive. We have generous vehicle services benefits, as it's attractive to drive company product."
How the vehicle services benefit works: Varies by job level. All associates may lease one vehicle at dealer cost and purchase up to two new vehicles at dealer cost per year. The employee lease includes insurance, license and all maintenance.
Dress code: "Officially, we are still business attire Monday through Thursday. Friday is casual day. But in IS, [if people] are working on a project where they are isolated in a team room and not interacting with the business side, they can come in business casual."
Workday: A flextime schedule with staggered arrivals and departures. A typical day averages longer than eight hours. A long day would be 14 hours.
Kind of offices: "Employees up through the first line of management are in cubicles. Cubes for first-level managers are double-wides. Second-level managers and up have enclosed offices. In IS, we're changing over to new furniture that will give us more flexibility to create project-team space. There's not a lot of opportunity now for open collaboration, and we are moving toward installing cubicle walls that are movable."

Must people carry beepers? Cell phones? All the operations people have beepers and cell phones, some developers have beepers, and all managers have cell phones.
Percentage of staff that telecommutes on a given day: "We only have 20 telecommuters, and none who are full time. It's a pilot group. We are working toward establishing a formal telecommuting program."
In-house cafeteria? Yes, four dining centers.
What's on the menu? A daily hot, fresh Mexican offering, Japanese food, salad bar, American deli food, frozen yogurt and Starbucks coffee.
Food rating (scale of 1 to 10, with 10 the best): 10
Free refreshments: Coffee and filtered water.
Other on-site amenities: Two credit union offices, two fitness centers, swimming pool, tennis court, running track, gift and sundries store, dry cleaners and photo finishing shop.
The one thing everyone complains about: Not enough office or parking space.
Last department perk: "Every other month, we have a 'town-hall' meeting with cookies and ice cream."
Quote: "There is a sense of pride here that everyone has. They work for a company that has a quality brand and makes an excellent product that they can relate to. With cars, everyone can point to the product and say, 'This is what I do.' So there's a positive environment here. This is the fifth company I've worked for, and in terms of both the physical environment and the people, it's the best combination I've ever experienced." – *Leslie Goff*

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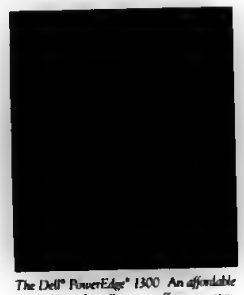

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Up to dual Pentium III Processors from 450MHz – 600MHz	Business Lease[15] starting at $67/Mo., 36 Months	64MB up to 2GB[4] 100MHz ECC SDRAM 9GB[4] (7,200 & 10,000 RPM) up to 36GB[4] Ultra-2/LVD SCSI Hard Drives Up to 144GB[4] Internal Storage Capacity	ECC Memory, RAID Capable, Optional Hot-Swap Hard Drives	E-VALUE CODE: 31196-290819
Up to dual Pentium III Processors from 450MHz – 600MHz	Business Lease[15] starting at $55/Mo., 36 Months	64MB up to 1GB[4] 100MHz ECC SDRAM 9GB[4] up to 36GB[4] Ultra-2/LVD SCSI Hard Drives Up to 108GB[4] Internal Storage Capacity	ECC Memory, RAID Capable	E-VALUE CODE: 31196-290816

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TECHNOLOGY

VENDORS PLAN FOR MERCED

All the major Unix vendors are on track to deliver IA-64 versions of their operating systems by the time Intel ships its Merced chip next year. But users may have to wait until 2001 to get many applications that take full advantage of IA-64 servers. ▶ 62

NEW R/3 NET MANAGING TOOL

NetIQ's new SAP R/3 performance management component was built from the ground up for Windows NT. The module uses a central repository to store historical performance data and generate service-level agreement reports. ▶ 65

UTILITY RIVALS UPGRADE TOOLS

Rivals Symantec and Network Associates last week updated several utility products. Symantec added a Windows hardware diagnostic to its Norton Utilities 2000, while Network Associates made some changes to its McAfee Utilities. ▶ 62

PALMS AWAY

Hello World, which operates vending machines nationwide, recently chose Palm handhelds for its inventory and collection needs. The company considered Windows CE-based machines, but figured it could save up to $400 per unit by going with Palms. ▶ 64

ADULT EDUCATION

Commentary: Cynthia Morgan points out that whatever you think of the content, most corporate Web managers could learn valuable lessons from the online pornography industry. ▶ 65

FLASHBACK: PCs ON THE RISE

In 1983, the PC took giant steps with the release of Compaq's first IBM clone, Lotus 1-2-3 and Microsoft Word. ▶ 71

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M bytes, MHz, MIPS, bits. Understanding these measurements can help you buy the best systems for your company. ▶ 67

SKILLS SCOPE: DATABASES

IT pros with database skills will find demand for their services increasing as companies complete their Y2K programs. ▶ 73

DELL ADDS TO LAPTOP LINE

Dell pitches a new offering into the hotly contested corporate notebook market: a lightweight Latitude computer priced from $2,899. ▶ 64

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E-MAIL: YOU'VE GOT OPTIONS

WITH INTERNET COMMUNICATION DOUBLING EACH YEAR, handling your corporate e-mail is more important than ever. The good news is that most organizations no longer wrestle with a half-dozen different systems. The bad news is that many businesses feel locked into either Microsoft Exchange or Lotus Notes. Although those are strong options, Field Report examines some other choices, too: Internet mail and outsourcing.

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Unix OSs For Merced On Track, but Apps Lag

Customers will have to wait for compilers and debuggers that are IA-64-compatible

BY JAIKUMAR VIJAYAN

ALL THE MAJOR Unix vendors are on track to deliver IA-64 versions of their operating systems by the time Intel Corp. starts shipping its Merced chip next year.

But users may have to wait for the arrival of Merced's successor — McKinley, scheduled for 2001 — before they get many applications that take full advantage of IA-64 servers.

That's because it will take at least that long for many of the compilers, debuggers and software tools needed to optimize applications for IA-64 to become available, analysts said.

"In many cases, users are just going to wait for packaged applications to become available on IA-64 before moving to it," said Jonathan Eunice, an analyst at Illuminata Inc. in Nashua, N.H.

IA-64 is the 64-bit chip architecture that Intel and Hewlett-Packard Co. have been jointly working on since 1994. Unlike current-generation complex instruction set computing- and RISC-based systems, IA-64 uses a technology called explicitly parallel instruction computing.

The technology promises to let users run Windows NT and Unix applications equally well — and at a lower cost than current RISC-based servers.

Currently, Unix development efforts relating to IA-64 have consolidated around three major camps — one led by IBM, one by HP and a third by Sun Microsystems Inc. Their efforts so far include the following:

- IBM is spearheading a multivendor effort to build a version of Unix code-named Monterey for IA-64. Monterey combines elements of IBM's AIX operating system with Beaverton, Ore.-based Sequent Computer Systems Inc.'s Dynix PTX and The Santa Cruz Operation Inc.'s (SCO) UnixWare. The merged Unix will include technologies like Sequent's Non-Uniform Memory Access and multipath I/O as well as SCO technologies like Universal Device Interface. IBM has said it will offer Monterey on its servers.
- HP's HP-UX 11, which began shipping in 1997, is a 64-bit, IA-64-ready, mission-critical operating environment. According to HP, HP-UX customers will enjoy full IA-64 binary compatibility without changing or porting their applications.

Dynamic Object Code Translation technology, a very high-level form of emulation, allows users to run a mix of binaries on their systems.

- Compaq Computer Corp. will have a development version of its Tru64 Unix for Merced when Intel announces the chip. The operating system won't be ready for deployment in production environments until McKinley arrives, Compaq said.
- In March, Sun, like the other vendors, demonstrated a version of Solaris running on a Merced simulator. The company is preparing to release a beta version of Solaris 8 along with the latest Merced simulator to key software vendors.

VENDOR	[illegible]	VENDOR CLAIMS
HP	HP-UX 11.0	HP-UX on PA-RISC will be exactly the same as HP-UX on IA-64.
IBM/SCO/ Sequent	Monterey	AIX users will need to recompile to run current applications on Monterey. Users of 32-bit UnixWare and Dynix PTX can either run their current applications in an emulated 32-bit environment on IA-64 or do a 32-bit recompile of their applications.
Compaq	Tru64	Current Tru64 Alpha applications can be recompiled to add support for IA-64. No source code changes needed.
Sun	Solaris	Solaris IA-64 native applications will interoperate with existing IA-32 applications without change or recompilation.

Several of the performance-boosting features of IA-64 can be harnessed only by code designed for the architecture, analysts said.

The options that users have for moving their existing applications to these environments depend on their current Unix version. Most users of UnixWare, for instance, will be able to run current applications on IA-64 either by doing a 32-bit recompilation on IA-64 (without touching the source code) or by running them in a sort of emulation mode, said Mike Foster, a marketing director at Santa Cruz, Calif.-based SCO.

Users of IBM's 64-bit AIX, meanwhile, will have a source-level compatibility with IA-64 and should be able to get most performance benefits by recompiling existing applications on IA-64, said Miles Barel, an IBM program director.

HP-UX will run both PA-32 and PA-64 applications unchanged, along with IA-64 native applications, using its Dynamic Object Code Translation technology.

"For most users, it's going to be a bit of a hassle but not a major disruption" to move current applications to IA-64 servers, Eunice said.

"I can't imagine that any application is going to break" when it's moved from a current platform to IA-64, said Tony Iams, an analyst at D. H. Brown Associates Inc. in Port Chester, N.Y.

SNAPSHOT

[illegible] Futures

[illegible] of the worldwide market for supply-chain [illegible] technology and services

[illegible]	[illegible]	[illegible]	[illegible]
Supply-chain planning	$1.1B	$1.7B	$2.6B
Supply-chain execution	$1.5B	$2.2B	$3.2B
Total market	$2.6B	$3.9B	$5.8B

[illegible]

*Projected

SOURCE: AMR RESEARCH INC., BOSTON

NAI, Symantec Release Updates to Utilities

McAfee out now; Norton out soon

BY DORTE TOFT

Utility software vendors Symantec Corp. in Cupertino, Calif., and Network Associates Inc. (NAI) in Santa Clara, Calif., both announced updates to several of their products last week.

Symantec launched Norton Utilities 2000 and Norton CleanSweep 2000, while NAI announced McAfee Utilities, which is built on NAI's Nuts & Bolts product.

Norton Utilities 2000 was developed for Windows 95 and Windows 98. It can be downloaded from Symantec's Web site now and will be available at retail stores soon. The price is about $49.95, Symantec said.

Symantec's enhancements to Norton Utilities 2000 include the following:

- A Windows hardware diagnostic that checks the status of all parts of the PC including hard disk, memory, modems, speakers and printers.
- Disk Doctor 2000, which checks the hard disk's boot sector, file allocation tables and directories and performs analysis to ensure the hard disk wasn't tampered with. The enhanced SpeedDisk utility optimizes placement of files on a crowded disk.

NAI's McAfee Utilities is available in retail stores now for about $19. It includes the following:

- A version of Disk Tune that rearranges files on the hard disk in order of importance for fast application launch.
- An enhanced Disk Minder, which conducts a deeper check of the disks.
- Universal Undo, which permits the user to undo a general system modification.

Toft writes for the IDG News Service in Boston.

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BRIEFS

Hitachi, Dell Add Eight-Way Servers

Hitachi Data Systems in Santa Clara, Calif., has updated its VisionBase server line, including the addition of a new eight-way machine. Dell Computer Corp. in Round Rock, Texas, also announced last week that it will soon start shipping an eight-way server.

The Dell PowerEdge 8450 will ship next month, the company said. It runs on up to eight Intel Corp. Pentium III Xeon 550-MHz processors and uses Intel's new Profusion chip set. Six of the servers can be stacked in a standard rack. Prices start at $20,000.

Hitachi will start shipping its VisionBase line next month, the company said. Servers in the line include the VisionBase 8890R, designed for Windows NT. It can be configured with up to eight Pentium III Xeon 550-MHz processors and offers up to 2M bytes of Level-2 cache per processor. Prices range from $30,000 to $90,000.

www.hds.com
www.dell.com

Gateway Offers Y2K Assurance

San Diego-based Gateway Inc. last week announced a program for commercial clients that will guarantee that desktop systems won't change configuration through the end of January. The offer, available on Gateway's E-series desktops, is intended to assure corporate customers that hardware configurations won't change as companies focus information technology resources on year 2000 work.

www.gateway.com

Intel Cuts Chip Prices, Eyeing Holiday Buyers

Intel last week said it had lopped as much as 47% off the prices of its desktop processors as part of an effort to make PCs more attractive as the holiday buying season approaches. The price cuts follow closely the release of desktop systems based on Advanced Micro Devices Inc.'s new Athlon processor, which has received many strong reviews. Intel said its price cuts are unrelated.

Palms Cut Vendor's Costs, Stem Theft

Looking for simplicity and low overhead, company passes on laptops, Win CE tools

BY MATT HAMBLEN

HELLO WORLD INC. two weeks ago began using Palm handheld devices to check inventory for 2,300 telephone calling-card vending machines nationwide.

Hello World's 35 collectors use Symbol Technologies Inc. bar-code scanners attached to the handhelds to help gather and relay information wirelessly to its Plano, Texas, headquarters via pagers over Sky-Tel Communications Inc.'s network.

Hello World picked the 3Com Corp. Palm handhelds instead of laptops or handhelds using Microsoft Corp.'s Windows CE because it needed a small, easy-to-use device with only limited functionality, said Steven Bell, Hello World CEO.

The system has saved about $35,000 per month in costs and has helped stop theft, Bell said. That's because the number of headquarters accounting staffers has dropped from six to two, and inventory information is current each day, compared with a delay of four to six days under the paper-based system. With a quicker turnaround, theft is easier to spot and can't be blamed on some other person in the process.

Easy to Use and Cheap

Hello World's integrator, J P Systems Inc. in Dallas, recommended the Palm devices a year ago because they were the only machines then that were integrated with the bar-code reader from Santa Clara, Calif.-based Symbol Technologies. Palm handhelds are also easy to use and cost hundreds of dollars less than Windows CE machines, said Matthew Horton, CIO at Hello World.

"At first, I wanted to do the automation on the Windows CE device, since I have had three different ones," Horton said. "Windows is certainly viable for this type of application. But I'm glad we chose Palm, because CE doesn't seem as stable and has so much more overhead," resulting in higher costs.

Apps Not Needed

Horton said Hello World didn't need all the software applications of CE machines, which raise the cost. He said his CE-based devices have crashed inexplicably several times, requiring him to remove batteries and lose memory.

Hello World pays up to $800 for each collector's gear. That includes a pager and a ruggedized Pilot device with a bar-code reader and software loaded on it. That's up to $400 less than a Windows CE machine might cost, according to Dayaker Puskoor, CEO of J P Systems.

Bell said he was originally thinking of having collectors carry laptops, "but Palms are far more efficient than a laptop because of the size, and it has a much easier interface."

Analyst Ken Dulaney at Gartner Group Inc. in Stamford, Conn., said Palm devices might serve Hello World well, but market trends show that the CE machines will outnumber Palm handhelds for industrial uses by 2002 because it has become more stable Windows CE has a wider range of applications.

"Hello World deserves credit for its innovation," he said.

MORE ONLINE
For mobile computing resources such as books and articles, visit our Web site.
www.computerworld.com/more

How It Works At Hello World

- Vending collector uses Palm handheld to scan bar codes on the vending machines, determining how many calling cards have been sold, how much cash was collected and the condition of the machine. Collector visits about 20 machines per day.
- Data is transmitted via pager to Hello World's database in Plano, Texas.
- Accounting staff, which was manually inputting 16,000 remittance sheets per month, now can more easily monitor cash deposits, and compare it with collections to guard against theft or to determine whether a vending machine is working properly.

Dell Lightweight Latitude Jumps Into Notebook Ring

Essentially a 4-lb. version of Latitude

BY JAMES NICCOLAI

Dell Computer Corp. in Round Rock, Texas, last week pitched a new offering into the hotly contested corporate notebook market — a lightweight Latitude computer priced from $2,899.

The Latitude CS runs on a 400-MHz Pentium II — Intel Corp.'s fastest mobile processor — and includes a full-size notebook keyboard and a high-resolution XGA 13.3-in. active-matrix thin film transistor (TFT) screen. The new notebook is essentially a 4-lb. version of the company's Latitude CPi, Tim Peters, Dell's Latitude general manager, said in a statement.

Dell's Latitude notebooks are aimed at business and institutional markets, where notebooks are becoming increasingly popular thanks to the space and portability advantages they offer. In addition, improvements in processor and display-screen technologies have helped narrow the gap between desktop and notebook performance.

The Latitude CS will connect to an existing Latitude docking station. It also shares the same power adapter and peripherals as other Latitude systems, including DVD-ROM, CD-ROM and floppy disk, Dell said.

Available now, the Latitude CS comes with a standard 64M bytes of RAM, expandable to 320M bytes; a 4.8G-byte hard drive; a floppy disk drive; and a three-year limited warranty.

Niccolai writes for the IDG News Service in San Francisco.

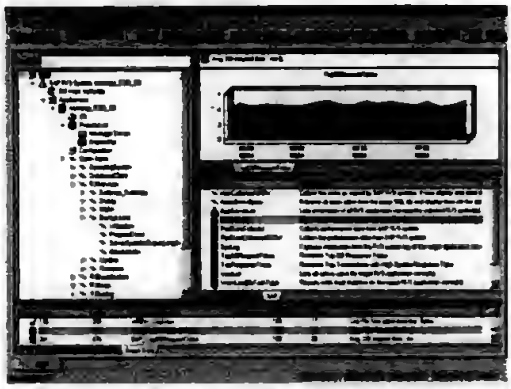
SAP R/3 Monitoring App Only Has Eyes for NT

Brings data from multiple sources into single module, automates minor network fixes

BY SAMI LAIS

WITH AppManager for SAP R/3 from NetIQ Corp. in Santa Clara, Calif., Windows NT network and systems managers have a new tool to manage SAP R/3 applications.

The SAP R/3 module to the company's application- and network-monitoring AppManager suite uses a central repository to store historical performance data and generate service-level agreement reports.



NetIQ's AppManager console gives NT network and systems managers a new tool for monitoring SAP R/3 applications

Offerings

Key features of the SAP R/3 component include auto-discovery and mapping of the R/3 environment, integration of SAP Computer Center Management System alerts into the AppManager event viewer and canned scripts that represent business rules. AppManager doesn't supplant the Computer Center Management System, but rather integrates and presents data from it.

Microsoft Corp. uses the Computer Center Management System tools as well as a variety of other tools, including "some internally developed systems," said Bryan Krieger, senior technologist at Microsoft. Pulling together monitoring and other functions from NetIQ AppManager, which Microsoft has been using for about a year at its data center in Redmond, Wash., SAP R/3 and SQL Server will simplify management, Krieger said.

Sharing Platforms

Other management plug-ins, such as BMC Software Inc.'s Patrol and Hewlett-Packard Co.'s OpenView ManageX Smart Plug-In for SAP R/3, also provide centralized availability management of distributed SAP R/3 environments.

Administrators of heterogeneous enterprise systems will probably be happier with an end-to-end product such as OpenView, said John Freeman, an analyst at Current Analysis Inc. in Sterling, Va. "You write a [service-level agreement] and you want it to be as specific as possible," he said. For that, you need something like OpenView to provide correlation of data across platforms, Freeman said.

But many of the issues are the same for plug-ins as they were for the basic monitoring tool suite, said Patrick Dryden, an analyst at Giga Information Group Inc. in Dallas. For NT systems, HP's ManageX is just "not as capable" as AppManager, he said.

Price and development histories have also been an issue for users.

Typical of NT network managers' reactions is that of Rich Burton, MIS manager at Nabisco Inc. in Parsippany, N.J., and an AppManager suite user. Burton said he looked at other monitoring products, including those from HP and Tivoli Systems Inc., but felt that "they were kind of expensive, and they were ported Unix solutions." AppManager, however, "was designed for NT from the ground up," he said.

AppManager for SAP R/3 is available for beta testing, with the final version planned by year's end.

AppManager costs $600 per NT server and $2,500 for the console. The SAP R/3 application server will cost $5,000.

CYNTHIA MORGAN/COMMENTARY

Porn paves the way for Web site profits

GOT A PROFITABLE corporate Web site? Maybe you should thank the porn industry. Adult Web sites are making unbelievably big bucks. While the content undoubtedly has something to do with it, such sites are taking new approaches to e-commerce that we can use.

Administrators at many corporate Web sites are trying to find new directions. But they also believe their sites will pay for themselves through conventional means such as banner ads, online sales or reduced off-line business costs.

Banner ad revenue rose dramatically early this year, but only for a handful of top sites. E-commerce and online customer care are on the rise, but they make, at best, minor additions to today's bottom line.

The Internet isn't a passive, broadcast-style medium. The array of choices is wider than ever, and people vote with their feet, er, mice. Customers can respond to our messages in real time. But most of us don't know how to respond back. The following lesson in "Porn 101: How to Make Your Site Pay" might help:

Fit your customer. Web personalization is in its infancy in most corporations. Many adult Web sites, on the other hand, track everything from a customer's expressed preferences, favorite queries and navigation choices to screen size and audio or video plug-ins.

Cynthia Morgan is Computerworld's technology evaluations editor. She can be reached at cynthia_morgan@computerworld.com.

Coopetition. Imagine querying Microsoft's site and getting a response like, "Sorry, Windows 2000 can't do that. Solaris can; we'll transfer you to their site." That's what porn sites do — in return for a referral fee or a reciprocating agreement. Many derive the lion's share of their profits from attracting and referring customers.

Repeat the message. Stumble into a porn site by mistake and you'll have a devil of a time getting out. I'm not advocating that method, but the motive is right. Repeat your message as many times as possible. Nicer methods include cross-linking to provide as many avenues to the information as possible and making your pitch easy to find through top-notch search systems and easily understood navigation bars.

Affiliate. Community is one of the most valuable commodities on the Web, but we're only beginning to exploit it; adult sites have it down to a science. If you've created an electronic cracker barrel — a gathering place for visitors with common interests and needs — you've got a target group a lot of people want. Selling bedroom furniture? Link up with vendors of linens, curtains, vases or closet shelves. In return, you charge a fee — or start selling on their sites.

These steps take time, money and a willingness to throw out old rules, but they'll help you turn Web sites into profit centers.

Internet by Proxy

Proxinet offers a server that reformats Web pages for handheld devices

BY AMY HELEN JOHNSON

WALT DISNEY was right: It's a small world, and handheld devices are making it even smaller. One of the last barriers to their use in corporations — access to intranets and the Internet — is being breached by Proxinet Inc.

The 2-year-old Emeryville, Calif.-based company sells a proxy server that sits behind corporate firewalls and translates intranet and Internet pages into a format that can be displayed on portable devices like personal digital assistants (PDA), smart phones and pagers. The technology is hampered now by the difficulty of translating certain Web page components, the limited number of handheld devices that can use the technology and the need to write translators to handle proprietary Web-based applications.

Counterbalancing the technology issues is a handheld market set to explode, according to analysts. International Data Corp. in Framingham, Mass., predicts that handheld device sales will reach 10.7 million units worldwide this year, with double-digit growth in the coming years. In addition, Internet use is shifting from information access to transactions such as e-commerce purchases and receiving highly formatted data such as stock prices.

These types of transmissions are better suited to display on the small, monochrome handheld screens.

Proxinet founder Armando Fox laid the foundation for the company when he was a graduate student at the University of California at Berkeley, studying intense computational applications on small devices under the umbrella of a wireless research project. From this esoteric-sounding academic investigation came a simple idea: By placing a proxy server between the device and the application source, you could intelligently strip out the unnecessary pieces of the display screens and reformat the remainder into output tailored for a handheld device.

The proxy could also handle any client-side processing; the handheld device only needed to display the output. The key was to know the characteristics of the devices you were targeting and then build in intelligence about what components of a Web page were necessary to pass through.

The idea has been put into practice, with approximately 25,000 customers loading a client application that lets them use Proxinet's public proxy server to surf the Internet. That allows Proxinet to approach prospective enterprise clients with a visible proof-of-concept.

One corporate client is on board: Fimatex, a French trading company, wants to extend its brokerage service to mobile users. But before corporate information technology managers get blissed out by the high cool factor, there are several issues to consider.

At the momeot, the only devices Proxinet supports are PalmPilot PDAs. And even with those, the radio communications channel of the Palm 7 is unavailable due to closed applicatioo programming interfaces, Fox says. The company has an alpha-stage versioo for the handheld Windows CE operating system and is working on a client for smart phones that support the Wireless Application Protocol standard.

Proxinet's products either don't support or provide minimal support for several Web technologies. And they don't support video and audio at all, although the company is working on the problem. Because it's hard to figure out how to split the functionality of Java and JavaScript applications between the proxy server and the handheld, they're difficult, but not impossible, to transform for handheld display, Fox says.

Furthermore, Web pages with high graphical content don't look good squeezed onto handhelds. Fox says advances in Extensible Markup Language will help solve that problem. Applications that pump a lot of data out to the client don't perform smoothly, either. Wireless channels tend to be slow and error-prone compared with physical connections.

The challenge is writing transformation utilities for proprietary applications. Unless they're true thin-client, Web-based displays that Proxinet already knows how to translate, someone has to write the transformation rules and figure out how much processing the proxy server needs to handle in the handheld's stead.

But, according to Jerry Hall, vice president of marketing at Proxinet, enterprise applications are some of the easiest to transform. "They stay away from exotic technologies because they're more focused on getting it to work than getting it to flash," he says.

Johnson is a technology and business writer in Seattle.

PROXINET technology officer Elan Amir (left) and company founder Armando Fox want to open the Web to handhelds

Proxinet Inc.

Location: 5801 Christie Ave. Suite 300 Emeryville, Calif., 94608

Telephone: (510) 923-6216

Web site: *www.proxinet.com*

The technology: Reformats Web pages for access with PDAs, phones and pagers.

Growth potential: Analysts peg this year's smart handheld market at 10.7 million units shipped worldwide; the numbers go up for subsequent years.

Why it's worth watching: Proxinet took a page out of the Java playbook: Build one Web site, run on any platform.

Company officers:
- J. Edward Snyder, CEO
- Armando Fox, founder, CIO and chief scientist
- Elan Amir, chief technology officer

Employees: 30-plus

Milestones:
- 1997: Founded
- 1998: First product released

Burn money: Financing from SoftBank Ventures, private placement

Products: ProxiWeb, ProxiWare Server

Customers: Fimatex in France

Red flags for IT:
- Java and JavaScript are difficult to serve up, and forget about pumping high-bandwidth audio and video over a wireless link.
- Graphics-intensive pages melt to mush on the miniscreen.
- Serving proprietary corporate applications to handheld users via the ProxiWare Server means learning to write display translation routines.
- Wireless "dead zones" murder all wireless handheld access – including Proxinet's.

COMPUTERWORLD emerging companies

[the buzz
STATE OF THE MARKET]

Big Ideas for Small-Screen HTML

Web site designers use the World Wide Web Consortium (W3C)-standard HTML to format Web pages for browsing. But when HTML was created, no one thought much about smart handheld devices, mostly because there weren't that many around. The specification is loaded with features that work best on desktop monitors.

The handheld market's dying for a small-screen HTML, and several proposals are on the table.

But this is one face-off that won't escalate into war. The heavyweights here, the W3C and the Wireless Application Protocol (WAP) Forum, are talking about cooperating on a common set of mobile Internet access specifications.

They're focusing on writing common recommendations for proxies and protocol design, content translation and Extensible Markup Language (XML) based applications:

Compact HTML

The W3C essentially chopped HTML 2.0, 3.2 and 4.0 down to size for this one, but it's a set of guidelines, not a full standard.

Compact HTML basically strips out anything that might give a small-memory, small-screen, monochrome device fits: JPEG images, tables, image maps, multiple character fonts and styles, background color and images, frames and style sheets.
www.w3.org/TR/1998/NOTE-compactHTML-19980209/

XHTML

Extensible HTML (XHTML) is a working draft that's on its way to becoming a standard in which HTML 4.0 marries XML. The W3C is ensuring that XHTML includes mobile devices in the Internet landscape.
www.w3.org/TR/xhtml1/

WML

The Wireless Markup Language (WML) is an application-layer specification for WAP V1.1. WAP focuses on Internet communications over phones, pagers and other wireless devices. The WAP Forum, which promotes it, has more than 100 members worldwide, ranging from Proxinet to handset manufacturers to telecommunications companies to application vendors.
www.wapforum.org

M Bytes, MHz and More

BY CARLA CATALANO

MIPS ... MHZ ... M bytes ... M bits. These measurements can be confusing, but to relate to the latest hardware, software and Internet access, you need to understand what they mean, especially if you're planning to purchase a computer or upgrade your existing system.

"The key is to focus on the end result," says Norbert Kriebel, an analyst at Giga Information Group Inc. in Cambridge, Mass. "Do you want to play games, browse the Web or just send e-mails? You'll need more RAM to play games [and] a faster browser to surf the Web. But a 386-MHz PC is just fine for sending e-mails."

PC technology evolves at such a rapid rate, and prices drop so quickly that it's difficult to gauge when to shop for your next PC. "Expect storage capacity, memory architecture, graphics capabilities and microprocessor speed to double every 12 to 18 months," says Bruce Stephen, an analyst at International Data Corp. in Framingham, Mass.

You should also understand some performance symptoms and what you may need to correct them. For example, if you run out of disk space, you may oeed more megabytes (M bytes) of hard disk space. If connecting to the Internet is slow and frustrating, you may need more megabytes of RAM, Stephen says.

When you're shopping, don't get stonewalled, Kriebel says. Users need to focus on the purpose of the technology — not its metric value. "For example, a corporatioo doeso't buy a maioframe because of its MIPS, but for its functional value," he says.

Analysts also warn that you can go too far when purchasing a new PC. "Don't go overboard," Kriebel cautions. Otherwise you'll end up paying for bells and whistles you don't need. "I tell my friends to buy what they need and no more."

In many instances, what you buy is a matter of choice — not necessity. Some people drive minivans, others drive sports cars; likewise, some want Pentium processors, others are happy with 486s.

Give a look-see. When you buy a house, you scan the kitchen to see if all your pots and pans will fit in the cabinets; you don't usually bring a ruler with you, Kriebel says. The same applies for PCs. You don't need to understand what all those measurements mean, you just need to know what you want to do, he says.

Measurements That Matter

Focus oo understaodiog storage aod traosmissioo speeds (modems, Ethernet cards, hard drives), and don't bother too much with the other measures like MHz, suggests Robert Enderle, an analyst at Giga.

For example, a machine's MHz doesn't have a direct relationship to the machine's performance because chip speed (MHz, KHz, GHz) is only part of the performance of a system, Enderle says. "A 600-MHz system can underperform a 400-MHz if the 400 has been optimized with other components," he explains.

Bits and bytes are both units used to measure digital information; it's just that bits are smaller. Bits and bytes are what we use to measure units of storage; however, the terms "bits per second" and "bytes per second" measure transmission speed between two modems, Kriebel says. For example, a hard disk drive can store 420M bytes of information, but a 56K bit/sec. modem transmits bits of information.

For transmission (modem to modem) we use bits, not because it's an older technology but because "it's a more precise term" when speaking about traosmission level," Kriebel explains.

In the past, we used bits to measure storage. But today, because storage capacity is so vast, we use bytes. "A bit is like a pebble," Kriebel says, "a byte is like a stone because it's a little more than a bit; a kilobyte is like a rock; a megabyte is like a boulder; and a gigabyte is like a mountain."

Catalano is a freelance writer in Holliston, Mass.

DEFINITION

A PC's performance is measured by how fast its microprocessor can process information (MHz); available megabytes (M bytes) of hard disk space and random access memory (RAM); and how fast (bit/sec.) it can transfer information.

Bits and Bytes

Storage Terms

Byte: One byte equals a unit of information 8 bits long. Computer memory or storage is measured in byte multiples such as kilobytes, megabytes and gigabytes.

Kilobytes (K bytes): 1K byte is 1,024 bytes, or approximately 1,000 bytes.

Megabytes (M bytes): 1 million bytes. Megabytes are used to measure floppy or CD-ROM disk storage space, RAM and hard disk space. Today, the amount of RAM in a PC ranges between 32M and 128M bytes. A floppy disk can hold 1.44M bytes, while a CD holds 650M bytes.

Gigabytes (G bytes): 1 billion bytes. Gigabytes are used to measure hard disk space on newer computers. "You need a good amount of hard disk storage space to guarantee you have enough space for data, programs and headroom for the future," says Bruce Stephen, an analyst at International Data Corp. in Framingham, Mass. He recommends a minimum of a 4G-byte hard disk drive.

New desktop hard drives can hold from 2G to 13G bytes. Laptop drives range from 1.5G to 4G bytes.

Processing Terms

Bit: Binary digit. The smallest unit of information on a machine, either one or zero. The bit is the "ground floor of technology," says Rob Enderle, an analyst at Giga Information Group Inc. The amount of information moving across a modem, data channel or network is measured in bits.

"Think of the bit in terms of miles per hour," Enderle says. For example, a 32-bit computer could be thought of as moving information through the computer at 32 miles per hour (32 bit/sec.), whereas a 64-bit computer would move it at 64 miles per hour (64 bit/sec.), Enderle explains.

Kilobits (K bits): 1,000 bits. Measures the amount of data transferred per second between two modems. The standard modem technology today is 56K bit/sec. There's also Integrated Services Digital Network technology, which moves data at 128K bit/sec.

Megabit (M bits): 1 million bits. Measures the amount of data transferred per second between modems.

Gigabit (G bits): 1 billion bits. Measures the amount of data transferred per second between two modems. "Different chips process information at different rates," Enderle says.

For example, a PowerPC chip running at 400 MHz processes information at a different rate of bits per second than a Pentium chip running at the same frequency, he explains.

Hertz (Hz): A unit of frequency of one cycle per second. Broadcast transmissions are expressed at much higher rates, in kilohertz (KHz) or megahertz (MHz).

Kilohertz (KHz): 1 kilohertz equals 1 thousand cycles per second. Kilohertz is a low frequency that's rarely used in PCs, except to specify the bandwidth of digital and analog signals. More common frequencies are megahertz and gigahertz.

Megahertz (MHz): 1 megahertz equals 1 million cycles per second. The speeds of microprocessors, buses and interfaces (called clock speed) are measured in MHz.

The standard speed for a processor desktop today is 400 MHz; the fastest is 600 MHz.

Gigahertz (GHz): 1 gigahertz equals 1 billion cycles per second.

MIPS: Million instructions per second, or the number of machine instructions that a computer can execute in one second. "MIPS aren't used much anymore, except for mainframes and minicomputers," Stephen says. MIPS has evolved into megahertz as a speed measure for smaller computers.

– *Carla Catalano*

AT A GLANCE

PC Jargon

You're about to buy a set of new laptops for your company, and you're trying to decipher what all those numbers and letters means. Here's an interpretation:

What you see	*What it means*
IBM ThinkPad	Vendor and product name
166 MHz	166-MHz processor
32MB	32M bytes of RAM
2.1GB	2.1G bytes capacity for the hard drive
56K	56K bit/sec. modem speed
10x	CD-ROM speed

Are there technologies or issues you would like to learn about in QuickStudy? Please send your ideas to QuickStudy editor Stefanie McCann at stefanie_mccann@computerworld.com.

MOREONLINE

For more information on storage and processing terminology, visit our Web site. www.computerworld.com/more

ALAN LEVERSON

E-MAILO

Several choices are available, but most companies still feel locked into proprietary messaging systems

By Alan Radding

SHIFTING e-mail traffic patterns, due in large part to the Internet and surging volumes of messages, seem to cry out for changes in how large organizations handle e-mail. "Communications with external companies over the Internet is increasing 100% to 150% a year," says Tim Sloane, managing director at Aberdeen Group Inc. in Boston.

The good news is that, in contrast to the days when organizations wrestled with eight, 10 or even a dozen or more e-mail systems, they're now facing the changing e-mail environment with just one or two choices from a set of three basic options.

At one point, observers expected some organizations to scrap their proprietary client/server e-mail systems for Internet-based e-mail because of cost savings and simplicity, but that never materialized on any large scale. Instead, the vendors of the proprietary systems quickly incorporated Internet e-mail protocols into their product offerings. "Lotus Notes and Microsoft Exchange added Internet protocols, so customers aren't switching to Internet e-mail," says Mark Levitt, an analyst at International Data Corp. in Framingham, Mass.

Customers can get the flexibility of Internet mail — a choice of browsers as the mail client, for example — without abandoning the considerable investment in the proprietary mail infrastructure and skills or having to give up the goodies offered by the proprietary systems, like guaranteed mail delivery.

Today, organizations are choosing among proprietary client/server e-mail systems like Microsoft Corp.'s Exchange, Novell Inc.'s GroupWise and Lotus Development Corp.'s Notes/Domino; Internet-based e-mail; and the newest option, e-mail outsourcing. It isn't unusual to find an organization mixing outsourcing with one of the other options. What follows is a look at some pros and cons of the options, analyst commentary and user experiences in the three major categories.

Proprietary E-Mail Systems

Larger companies continue to hang on to proprietary e-mail systems such as Notes/Domino and Microsoft Exchange. Even though they're expensive to install and maintain, these systems deliver extensive integrated functionality that goes far beyond basic e-mail. In addition to guaranteed mail delivery, they offer calendaring, scheduling, collaboration functionality and, in the case of Notes, an application development environment.

"For most people, Notes and Exchange are expensive overkill," says Joyce Graff, vice president and research director at Gartner Group Inc.'s Intranets and Electronic Workplace service in Stamford, Conn. "But a portion of the users need all those bells and whistles."

And if they don't need all that functionality now, they think they might need it in the future. "If a company doesn't need the additional features of Notes or Exchange, it makes sense to go with basic Internet e-mail," Sloane says. However, most companies won't want to commit to basic e-mail, he continues, because next year or the year after they might want some of those extra functions. So they opt for Notes, GroupWise or Exchange now so they won't have to switch later.

PROS: Full-feature e-mail systems; built-in integration with Microsoft's Office suite or Lotus' Smart Suite; easy mail-enabled applications; sophisticated groupware capabilities.

These systems deliver a broad range of messaging capabilities beyond e-mail. Organizations can use these systems to build and deploy complex mail-enabled applications that support activities ranging from customer service to supply-chain management.

CONS: High cost to acquire and maintain; organizations intent on taking advantage of the advanced features require skilled administrators and technical support; development costs for complex applications can soar, requiring the assistance of specialized consultants; in general, Notes allows more complex and more costly development than Exchange; organizations using Exchange typically are mail-enabling Microsoft Office applications.

TYPICAL USE: Larger companies needing full-featured e-mail and mail-enabled applications and organizations that are committed to the Microsoft platform and suite of front- and back-office applications will favor Exchange. Organizations desiring sophisticated groupware functionality and intending to build collaborative mail-enabled applications will opt for Notes/Domino.

USER EXAMPLE: PROPRIETARY E-MAIL/ MICROSOFT EXCHANGE – TYCO PRINTED CIRCUIT GROUP

Tyco Printed Circuit Group Inc. in Los Angeles uses Microsoft Exchange for all of its e-mail needs, including Internet mail. The company has standardized on Microsoft's Office suite for both the front and back end, so Exchange was a natural choice.

With Exchange, Tyco can take advantage of mail-enabled Microsoft applications such as Microsoft SQL Server database applications for consignment inventory status and order acknowledgment. Exchange gives it a messaging infrastructure that will take it well into the next century, says Hans Dohm, in-

OPTIONS

formation services manager.

The company installed one Exchange mail server at each of its 11 divisions. The divisions replicate and synchronize directories among servers automatically at midnight. Certain critical applications and electronic forms, however, are replicated more often. Otherwise, Exchange requires minimal intervention. For administration, "we might go in and do something every two or three months, but we don't need to poke around too much," Dohm says.

USER EXAMPLE: PROPRIETARY MAIL/ LOTUS NOTES - BASF

BASF Corp. in Mount Olive, N.J., expects to complete its migratioo from Microsoft Mail to Lotus Notes as its global e-mail standard later this year. "We standardized on Notes for groupware in the mid-1990s," says Cliff Denker, manager of messaging and groupware. Since August 1998, the company has been shifting its 12,000 e-mail users to Notes at the rate of about 1,000 per month. Users have seamless internal and external mail, whether using the internal network or going out over the Internet.

"E-mail is a very strategic service for us, and it is getting more strategic every day," Denker explains. The company assigns about 1,000 users to each e-mail server and pairs each server witb a remote backup as an automatic fail-over if a mail server goes down. The company plans a number of mail-enabled Notes applications, including a companywide reporting system to track customer complaints. Other Notes applications use the e-mail capabilities for forms routing. The big push with Notes groupware, however, will come after everyone is converted to Notes e-mail.

Internet Mail

Internet mail consists of Post Office Protocol (POP) and Simple Mail Transfer Protocol (SMTP) mail servers providing mail services to users running Internet browsers. The users can choose among any popular browser mail client, such as Netscape Communication Corp.'s Navigator, Qualcomm Inc.'s Eudora or Microsoft's Outlook. The result is basic e-mail, which meets the needs of most users, Graff says. If you don't mind fewer frills, "you can support more people for less money" with Internet e-mail services, she says.

"Internet e-mail is simpler and cheaper, but you won't get integrated calendaring, scheduling, database functionality or applications," Levitt says. You can get those features if you want to do the extra work. Frills are added by integrating applications that provide those functions, which increases the cost and complexity.

The big question organizations must ask themselves is what's the value of the frills compared to basic e-mail, says Nina Burns, president of Creative Networks Inc., a research firm in Palo Alto, Calif. Unless companies are developing complex e-mail-enabled applications in Notes or Exchange, they will find the most value for the dollar in a vanilla Internet mail system.

PROS: Low cost to acquire and maintain, which equals an attractive cost of ownership; Internet mail is simple to implement and maintain; it's possible to add a few frills, like basic scheduling, by integrating other applications, although this will increase the cost and complexity of the effort.

CONS: Lack of rich integrated e-mail functionality and collaboratioo capabilities.

TYPICAL USE: For companies without extensive investments in proprietary systems or those seeking low-budget alternatives; for smaller companies that don't generally take advantage of the advanced functionality of applications like Notes or Exchange and for whom supporting such systems is a burden.

USER EXAMPLE: EARTHWEB

EarthWeb Inc. is a young, quickly growing Internet-based informatioo publishing company with offices across the country. "We use standard Unix sendmail with POP, SMTP and [the Internet Messaging Protocol]," says John Kleine, vice president of technology. New York-based EarthWeb supports 400 internal mailboxes and uses Lightweight Directory Access Protocol (LDAP) for its corporatewide address book. It maintains a mail server in each office and runs its domain name server at headquarters. Users can pick the Internet e-mail client of their choice. Among the frills it has implemented is spam protection (the ability to filter out unsolicited e-mail), which is part of Unix's sendmail facility.

EarthWeb maintains a Unix mail server in each of its offices. The LDAP directory handles both internal e-mail addresses and addresses from outside the company.

E-Mail Outsourcing

The latest twist for saving money is e-mail outsourcing. In this process, the organization turns over the management of user mailboxes and e-mail services to an outside vendor. The decision to outsource e-mail "comes down to a matter of where to focus your resources," Burns says. By outsourcing, organizations can shift informatioo technology staff that previously administered the e-mail system to other, presumably more productive, tasks. The advantages of outsourced e-mail are initial cost savings and lower ongoing maintenance costs, she says.

E-mail outsourcing is being fueled by the rise of application service providers, Burns says. Similar to the timesharing of the past, applicatioo service providers run enterprise class applications that organizations can access oo a per-use basis, Burns explains. E-mail outsourcing vendors often offer Internet mail, but they're just as likely to offer Notes or Exchange, she says.

Companies save because they don't have to purchase the software or perform any ongoing maintenance. Instead, they're usually charged a low monthly fee of a couple of dollars per mailbox, which is roughly the same as the per-user cost.

"In rational dollars-and-cents terms, e-mail outsourcing makes a lot of sense," Sloane says. The decisioo to outsource e-mail should revolve around how much of the organization's use is unique. "Most companies aren't doing very much [with e-mail] that is unique," he adds. If the company isn't doing something unique, then it can take advantage of what amounts to commoditized e-mail offered by the application service providers.

A little more than half the companies surveyed last month in a Gartner study said they expect to ontsource part of their e-mail operations within the next two years, Graff reports. The most likely parts targeted for e-mail outsourcing are small groups of remote users such as those at distant satellite offices, mobile users and extranet/Internet e-mail.

PROS: Low ongoing costs and no cost to acquire and deploy; frees staff formerly tied down administering e-mail for more productive tasks; the outsourcing vendor takes care of security issues and virus-screening; users report that outsourcing vendors provide better management reporting on e-mail activity than they can get on their own without digging through e-mail logs.

CONS: Lack of direct control of a critical function; outsourcing may not support an organization's unique use of e-mail or e-mail-enabled applications; pricing, terms, conditions and service levels differ greatly.

TYPICAL USE: For specific e-mail problems, such as small offices that can't support their own e-mail solutions, remote satellite offices or mobile users; it's attractive to companies that want to refocus existing staff on other tasks or that lack the personnel to support rapid e-mail growth or new types of e-mail, such as Internet mail.

USER EXAMPLE: INTRAWEST CORP.

The adveot of Internet mail outside the organization led Intrawest Corp., a Vancouver, British Columbia-based manager of resorts, including Whistler Mountain in British Columbia and Strattoo Mountain in Vermont, to outsource the Internet piece of its e-mail.

When it turned to The Electric Mail Co. in Vancouver to outsource its Internet mail, the company's volume of Iotemet mail was light. But today, both internal and Internet mail volumes are doubling every few months as the company adds oew resorts. "The Electric Mail Co. handles all the Internet, security, antivirus and content screening for us. We would otherwise have had to hire more people," explains Violeta Iova, Intrawest's IT corporate manager.

From a cost standpoint, Iova said she considers outsourcing a bargain. "Electric Mail is saving us money. [The service] costs us less than $2,000 per month for under 1,000 users," Iova reports. By comparison, the company's Microsoft Exchange implemeotatioo is costing it more than $500,000. More than just the savings, however, is the improved management reporting that the outsourcing vendor provides as part of the service. Intrawest gets better reports more easily from the outsourcing vendor than it could get from its internal e-mail systems, Iova says. "I doo't have to manipulate anything to get reports."

> **In rational dollars-and-cents terms, e-mail outsourcing makes a lot of sense.**
>
> TIM SLOANE, ABERDEEN GROUP

Radding is a freelance writer in Newton, Mass.

As Easy as Lotus 1-2-3

New PC app provided integrated charting, plotting and database capabilities

BY MARY BRANDEL

IF THE FIRST wave of PC software was characterized by the first PC spreadsheet, Visicorp's Visicalc, the second is best seen through the lens of another spreadsheet, Lotus 1-2-3, which shipped in 1983.

Lotus 1-2-3 was the creation of Mitch Kapor, a product manager at Visicalc's publisher, Personal Software Inc. Originally written for Apple Computer Inc.'s Apple II, Visicalc was slow to optimize the greater memory and 16-bit capabilities of the IBM PC. "There were also major functional enhancements, such as integrated graphing and macros, that were absent from Visicalc," Kapor says.

So Kapor sold his rights to the two Visicalc companion products that he developed, gathered some venture capital and formed Lotus Development Corp. in 1982.

The resulting product was a blockbuster. It was easier to use than Visicalc and included integrated charting, plotting and database capabilities. A level of advertising unseen in the computer industry also fueled its release. "It was one reason we got so far ahead and stayed far ahead for a long time," Kapor says. Lotus advertised in *The Wall Street Journal*, *Business Week* and *Fortune*, targeting the businessperson, not the hobbyist.

LOTUS' MITCH KAPOR targeted business users

Lotus was also the first PC software vendor to provide extensive customer support. "I tried to figure out what mattered to business users," Kapor says. "It was clear that good tutorials and context-sensitive help would smooth the learning curve."

As Kapor puts it, Lotus 1-2-3 legitimized the PC on the business desktop. "It was a kind of template for successful PC products in terms of user interface, level of capability, expectations about support and professionalism in serving the business marketplace," he says.

Meanwhile, Microsoft Corp.'s Applications Division was gathering strength. In the same year that Lotus 1-2-3 was released, Microsoft shipped its word processing program, Microsoft Word, with similar fanfare, mailing out 450,000 free demonstration diskettes. The company had already released its spreadsheet, MultiPlan, but neither it nor Word enjoyed immediate popularity.

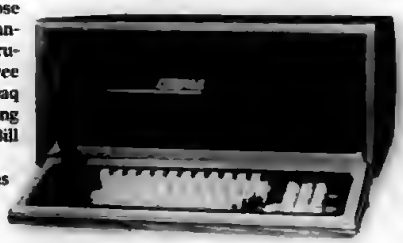
But thanks to a strong revenue stream from MS-DOS, Microsoft was a waking giant. Lotus was the PC software king in 1983, but eventually it would cede that title to Microsoft.

Compaq's Clone Debuts

BY MARY BRANDEL

Like the Internet entrepreneurs of today, business-minded people of the early 1980s were eager to find their niche in the microcomputer business. One of those people was Rod Canion, an ex-Texas Instruments Inc. employee who founded Compaq Computer Corp. along with Jim Murto and Bill Harris.

Canion and his business partners wanted to make their mark by building a portable computer — really a 28-lb. "luggable." At the same time, they recognized that IBM's PC established a "standard" for the industry. So in 1983, Compaq shipped a $2,995 portable that was compatible with IBM's PC, including the ability to run software developed for it. This was one of the first IBM PC "clones," and the company sold 53,000 in the first year, to the tune of $111 million in revenue.



COMPAQ'S IBM PC clone

After that, if you didn't sell an IBM PC clone, there wasn't much use being in the PC business (unless you were Apple Computer Inc., of course). Compaq went on to create machines that bested IBM while conforming to its standards. For instance, Compaq beat IBM to the punch with the first Intel 80386-based machine in 1986.

In the end, Compaq turned what could have become an industry dominated by a single company into one that gave plenty of choices to the consumer.

Brandel is a frequent contributor to Computerworld. Contact her at marybrandel@norfolkcounty.com.

1983

Apple Computer Inc. introduces the Lisa, a PC with a graphical user interface. The machine doesn't sell, however, and becomes an infamous **commercial flop**. One likely reason is that it costs $10,000. Apple also releases the **Apple IIe**, which runs **Apple Basic** and sells for $1,400. This is also the year Apple enters the Fortune 500, at No. 411.

Danny Hillis and **Sheryl Handler** found **Thinking Machines Corp.** The quirky Hillis, famous for driving a fire truck to work, designed an early massively parallel machine while at MIT.

Completion of the switchover from **Network Control Protocol** to **TCP/IP** marks the beginning of the global Internet.

Microsoft Corp. introduces the **Windows** operating system, but it won't ship for two years. Microsoft also introduces the Microsoft mouse, for use with the IBM and any other MS DOS-based PC.

Tom Jennings creates the bulletin board system **Fido** as well as **FidoNet**, which links Fido bulletin boards worldwide. Jennings eventually will offer the software for free online — allowing for a low-cost public e-mail system.

Apple brings in **John Sculley** (at right) as president and CEO. Sculley, formerly president of PepsiCo Inc., is reported to have been brought in to provide marketing savvy. **Jean-Louis Gassee**, who ran Apple's product development before leaving the company in 1990, said about Sculley, "John convinced corporate America that Apple was not run by a bunch of renegades in blue jeans and ponytails."

RadioShack introduces the **TRS-80 Model 100** "book-size" computer. It weighs 4 lb. and has built-in word processing and communications software.

Osborne Computer Corp., which introduced one of the first portable computers in 1981, **declares bankruptcy** and goes out of business.

Chemical Bank in New York launches the **Pronto** service, the first large-scale home banking system. Customers can check balances, transfer funds and pay bills.

MGM/United Artists releases **War Games**, starring Matthew Broderick as a young hacker who taps into North American Aerospace Defense Command systems and accidentally causes a countdown to nuclear war.

Texas Instruments Inc. leaves the home computer market, ending production of the **TI 99/4A** microcomputer.

Arpanet is split into **Arpanet** and **MILnet**. The latter is integrated with the **Defense Data Network**.

Phillips Kahn (at right) founds **Borland International Inc.** Kahn, a former saxophone player, described his company's philosophy to *Computerworld*: "[John] Coltrane once said, 'Damn the rules. Any way you play it, it's the same 12 notes.' . . . We sell useful software at rock-bottom prices."

Novell Inc. introduces NetWare, a file-server **LAN** operating system.

The Musical Instrument Digital Interface (MIDI) is introduced at the first North American Music Manufacturers show in Los Angeles. **MIDI** is an industry-standard electronic interface that links music synthesizers. The MIDI information tells a synthesizer when to start and stop playing a specific note, what sound that note should have, how loud it should be and other information.

Ovation Technologies announces an integrated software package for **DOS**. The product is never delivered, and the term *vaporware* is used to describe it.

George Stickles and Debbie Fuhrman are electronically wed, with more than 70 online guests watching and throwing "rice" — commas and other punctuation marks. The two met via the CompuServe network.

Compiled by *Computerworld* corporate librarian Laura Hunt.

■ Flashback is produced with the assistance of The Computer Museum History Center in Mountain View, Calif.

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Desperate For Data Skills

Database administrators, designers and analysts are in high demand as companies integrate their data for competitive edge and improved customer relationships

By Jill Vitiello

IMAGINE conducting an 18-month quest to hire a qualified database administrator, only to keep coming up empty. "I've had people accept offers and then not come in. It's just maddening," says Michael Heaney, database manager at The Institute of Genomic Research, a biotechnology firm in Rockville, Md.

Job titles with the word *data* in them are in such great demand across most industries around the country that those with experience in the preferred Oracle, SQL and Sybase databases can command huge salaries, many as high as six figures.

"We're a small nonprofit," Heaney says. "It's an intellectually stimulating environment, but we can't compete with companies willing to pay $85,000 for a couple years' experience. We've had to lower our sights and look for junior people who demonstrate a capacity to grow into the position."

As if current demand weren't strong enough, experts predict that the need for database professionals will increase in just a few months. Many companies are waiting to complete their year 2000 conversions before implementing the latest database technology. When they do, the information technology market will be flooded with a variety of database job openings.

The Jobs

With so many different kinds of database jobs available, it helps to understand just who does what.

"Database designers need a mathematical or engineering background and must be able to solve complex problems," says Richard Wonder, president of Richard Wonder & Associates, an IT recruiting firm in New York.

"Database administrators are more responsible for ensuring the performance of the database, understanding the platform it runs no and handling daily tasks, such as adding users," Wonder says. "Database analysts have to understand business processes and be able to interface with people in sales, marketing and production."

BRIAN SMALE

> The future of database careers is just going to get bigger.
>
> MARY KELLEY, PRESIDENT OF DIGITAL WORLDWIDE, FOOTE, CONE AND BELDING

"Data mining and data warehousing are hot because they provide decision-support data or business intelligence — the information on which executives and marketers base judgments," says Steve Wolff, an Austin, Texas-based IT recruiter at Manpower Technical, a division of Manpower Inc.

"The future of database careers is just going to get bigger. Are we collecting more data? Do we integrate databases? Do we know how to analyze that data in all its richness?" says Mary Kelley, president of digital worldwide at Foote, Cone and Belding Inc. "Yes. This is not something that's going to evaporate overnight."

Kelley is responsible for the interactive capabilities of the New York-based advertising and communications firm. Prior to working at Foote, Cone and Belding, Kelley was an IT vice president at Charles Schwab & Co., where she was in charge of database administration and built datamarts. Now she's gone the next step in her career to apply the "business intelligence" gleaned from data mining to support her new company's efforts.

The Career

There's little chance of boredom in a database career because the field is expanding so rapidly.

"The whole definition of *database* is changing," Wonder says. "Data elements could be programs or links to Web sites. The Internet is forcing people to change the way they process information."

In fact, the Internet gives database wanna-bes a perfect opportunity to try their hand. "Anybody can download Linux for free and work with databases," Heaney says. "Those are the self-starters."

Plus, for database professionals with business savvy, there's the possibility of using their talents to impact customers and profitability.

"Some large firms still haven't integrated databases yet," Kelley says. "Companies that keep separate databases don't really understand their relationships with their customers; they only know their customers' relationships with individual products. This is an opportunity for IT to learn marketing processes and get some cross-training."

Database vendors and independent training companies offer courses that can lead to certification, primarily as database administrators or analysts. A five-week certification program can cost upward of $5,000. Employers may pay the training tab, and some encourage certification. ▶

Vitiello is a freelance writer in East Brunswick, N.J.

Background, Training Keep You Moving Up

Here's a sampling of how some database professionals cut their teeth and keep up in the field:

■ **Debbie Coleman,** *Oracle database specialist at American Trans Air Inc. in Plainfield, Ind.:*
"I've been working with relational databases since the early '80s, so I've evolved along with the products. Most of my training has been hands-on, some course work, reading books and setting up test environments and trying it on my own."

■ **Raymond Lefebvre,** *lead Oracle database administrator at Sinde Rite Corp. in Lexington, Mass.:*
"I've had 11 weeks of Oracle training in the past two years, but I've been too busy to take the certification tests. Having core Unix skills makes me more effective, since most large Oracle databases run on Unix. Understanding how the database and the operating system work together helps you implement applications and maintain the database."

■ **Richard Gutierrez,** *contractor at Manpower Technical, a division of Manpower Inc., working in Austin, Texas:*
"I began dabbling with Lotus Notes software on my home computer, then took courses with Manpower, which is an authorized trainer. I am working toward the Certified Lotus Specialist. Lotus Notes certification gives you career mobility and leads to higher salaries."

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WEEK IN STOCKS

PERCENT	
Transation Network Services (H)	59.2
Ariba Inc. (H)	29.9
J. D. Edwards & Co.	18.4
Amazon.com Inc.	17.7
Security Dynamics	17.5
Tibco Software Inc.	16.4
Tech Data	16.4
Safegard Scientifics	15.8

PERCENT	
National Instruments Corp.	-28.9
ADC Telecommunications Inc.	-19.2
American Power Conversion	-12.1
Transaction Sys. Architects	-10.7
Entrust Technologies Inc.	-8.3
Tricord Systems	-8.3
Iomega	-8.2

DOLLAR	
Ariba Inc. (H)	29.94
Amazon.com Inc.	19.38
Juniper Networks Inc. (H)	18.94
Transation Network Services (H)	10.38
Qualcomm Corp.(H)	10.30
Uniphase (H)	[illegible]
Intuit	11.25
Microsoft Corp.	10.38

DOLLAR	
National Instruments Corp.	-10.88
Sony (H)	[illegible]
ADC Telecommunications Inc.	-8.44
Trans. Sys. Arch.	-3.88
Transaction Sys. Architects	-3.88
Jack Henry Associates	-2.94
American Power Conversion	-2.50
Hnc Software	-2.50

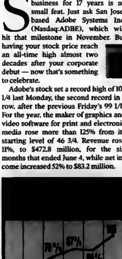
Adobe's Stock Price Gets Better With Age

Aggressive plan credited for record stock price

BY STACY COLLETT

SURVIVING IN THE software business for 17 years is no small feat. Just ask San Jose-based Adobe Systems Inc. (Nasdaq:ADBE), which will hit that milestone in November. But having your stock price reach an all-time high almost two decades after your corporate debut — now that's something to celebrate.

Adobe's stock set a record high of 105 1/4 last Monday, the second record in a row, after the previous Friday's 99 1/8. For the year, the maker of graphics and video software for print and electronic media rose more than 125% from its starting level of 46 3/4. Revenue rose 11%, to $472.8 million, for the six months that ended June 4, while net income increased 52% to $83.2 million.



Industry watchers credit Adobe's success to an aggressive research-and-development plan that expanded its business from publishing software to video- and Web-development tools as well. Adobe PageMill for Web page designs sold more than 1 million copies in the first half of this year.

"In fiscal 1998, Adobe spent $207.3 million on [research and development]. That was 23% of revenue," said Michael Murphy, editor of "California Technology Stock Letter." Even a bad earnings year in fiscal 1997 didn't stop Adobe from spending $170 million on research and development. "They didn't give a damn what Wall Street thought, and that was the right thing to do ... driving an explosion of new products," he added.

Adobe's purchase of Menlo Park, Calif-based GoLive Systems Inc. in January also helped move the software vendor into the Internet age, analysts said. GoLive software includes a Web application engine that brings together graphics, sound and e-commerce.

Others said Adobe is in the right market at the right time. "Adobe has done a good job of focusing on a market that turned out to have growth potential and good repeat purchasing potential," said Louis Mazzucchelli, an analyst at Gerard Klauer Mattison & Co. in New York. "And they've managed to do better than lots of other companies in terms of longevity."

Analyst estimates for the third quarter, which ends Aug 31, began at 60 cents per share earlier this year but have steadily climbed to nearly 75 cents per share. Estimates for the fourth quarter are heading toward 80 cents per share. ▶

TICKER	52-WEEK		NAME	AUGUST 27 2 PM	1WK NET CHANGE	1WK PCT CHANGE
[illegible]						
ADBE	105.25	23.62	Adobe Systems Inc. (H)	99.13	2.40	2.6
ARBA	169.75	18.00	Ariba Inc. (H)	130.00	29.94	29.9
AZPN	29.88	8.12	Aspen Technology Inc.	8.25	0.43	1.6
ADSK	49.43	21.62	Autodesk Inc	23.31	-0.25	-1.1
AVID	34.25	11.88	Avid Technology	17.50	-0.00	-0.5
BMCS	58.40	30.50	BMC Software Inc	55.00	1.13	2.1
BOBJ	49.50	8.12	Business Objects S.A.	38.63	1.19	3.0
CDN	30.00	9.17	Cadence Design Systems	12.00	0.81	6.0
CBTSY	86.00	8.50	CBT Group Plc	27.50	4.25	5.1
CHKP	80.00	10.87	Checkpoint Software Tech (H)	75.00	7.25	10.6
CTXS	95.75	20.12	Citrix Systems Inc.	56.00	5.25	10.2
COGN	38.13	14.75	Cognos Inc	25.06	0.19	0.8
CA	38.06	38.00	Computer Associates Internat'l Inc.	57.19	3.13	6.4
CPWR	44.00	15.37	Compuware Corp	40.00	0.31	1.0
DCTM	54.12	8.37	Documentum	14.29	0.61	-4.2
EFII	46.97	19.12	Electronics For Imaging (H)	30.81	2.81	4.0
HNCS	45.62	13.75	Hnc Software	34.44	-2.50	-6.8
HYSL	18.12	9.87	Hyperion Software	17.33	0.00	0.0
ITWO	58.18	12.43	i2 Systems	60.31	-0.69	-0.8
INFA	44.50	10.00	Informatica Corp.	57.88	1.38	2.4
IFMX	14.00	3.00	Informix Software Inc.	7.00	0.00	0.0
INTU	110.75	44.19	Intuit	98.25	11.25	14.1
JKHY	45.00	26.43	Jack Henry Associates	37.00	-2.94	-7.3
JDEC	40.88	13.87	J.D. Edwards & Co	18.13	2.81	18.4
LGTO	49.13	13.75	Legato Systems Inc. (H)	45.19	5.56	14.1
MACR	53.25	12.37	Macromedia Inc	39.00	2.50	6.8
MANU	20.37	5.25	Manugistics Group Inc	12.63	-0.50	-3.8
MENT	11.00	5.43	Mentor Graphics	7.00	0.38	4.3
MSFT	100.75	43.87	Microsoft Corp	94.31	10.38	12.4
NETA	67.00	13.06	Network Associates	17.75	0.63	3.6
NETG	53.87	10.37	Network General	52.81	1.13	2.2
NOVL	31.12	7.93	Novell Inc. (H)	24.00	-0.94	-3.8
ORCL	41.18	15.25	Oracle Corp	37.25	0.69	1.9
PMTC	72.25	8.50	Parametric Technology Corp.	14.38	0.19	1.4
PSFT	39.00	11.50	PeopleSoft Inc	14.44	0.38	2.7
PIXR	53.75	27.50	Pixar	34.06	-1.31	-4.3
RATL	40.00	10.50	Rational Software Corp.	29.94	0.19	0.7
RHAT	300.88	16.00	Red Hat Inc.	79.00	10.09	14.7
SAP	53.12	22.75	SAP AG	34.13	1.50	4.6
SCUR	29.00	2.25	Secure Computing Corp.	8.19	0.09	1.0
SE	49.43	18.00	Sterling Commerce Inc.	25.00	0.69	2.4
SSW	90.62	18.18	Sterling Software Inc.	26.19	1.06	-5.0
SDRC	23.44	7.50	Structural Dynamics Research	16.75	1.13	6.7
SYBS	13.31	4.50	Sybase Inc.	12.75	1.00	12.1
SYMC	32.29	8.08	Symantec Corp	28.56	0.69	2.5
SNPS	63.25	18.45	Synopsys	65.00	1.00	2.4
SCTC	22.50	7.87	Systems & Computer Technology	15.25	1.00	6.2
BAANF	33.12	8.07	The Baan Co. N.V.	13.25	-0.69	-4.8
VNTV	15.81	5.00	The Vantive Corp	8.69	0.38	4.3
TIBX	41.37	10.75	Tibco Software Inc.	26.45	3.75	16.4
TSAI	51.00	18.00	Trans. Sys. Arch.	18.75	-3.88	-17.1
VRTS	83.43	11.87	Veritas Software Corp.	86.86	4.50	5.1
WIND	38.43	11.25	Wind River Systems Inc.	18.19	1.00	7.0
[illegible]						
AT	75.00	44.86	Alltel Corp.	70.19	0.50	0.8
AIT	77.25	43.37	Ameritech Corp.	90.81	-1.19	-1.8
ANDW	22.87	10.37	Andrew Corp.	17.94	-1.00	-7.1
T	64.12	37.25	AT&T	49.44	2.88	6.7
BCE	52.00	25.62	BCE Inc.	40.06	1.19	4.1
BEL	40.88	43.62	Bell Atlantic	64.44	2.88	4.7
BLS	51.37	37.31	Bell South	46.50	1.13	2.6
CBB	28.50	8.50	Cincinnati Bell Inc.	20.50	0.25	1.3
CMCSK	47.06	18.87	Comcast	34.38	-1.69	-4.7
CQ	18.62	31.75	Comsat Corp.	30.63	-0.56	7.6
COX	44.43	20.75	Cox Communications Inc.	38.19	1.75	4.8
GSTRF	33.00	8.37	Globalstar Telecom. Ltd	30.00	0.81	2.7
GTE	78.50	55.56	GTE Corp.	72.44	0.50	0.8
NT	69.75	4.25	Nortel Communications (L)	69.75	-0.06	-0.1
SPOT	48.87	20.37	PanAmSat	46.26	1.06	2.0
QCOM	184.62	9.87	Qualcomm Corp. (H)	180.10	10.30	6.7
SBC	59.93	35.00	SBC Communications	50.75	1.31	2.5
FON	57.43	27.19	Sprint Corp.	47.00	3.62	8.7
TDS	78.37	60.62	Telephone and Data Systems	90.38	2.38	3.5
TNS	86.18	17.00	Transaction Network Services (H)	46.31	10.38	59.2
USW	59.50	47.06	US West	58.19	1.38	2.5
VIA	18.75	24.62	Viacom	44.19	3.38	8.3
WCII	18.43	41.25	Winstar Communications Inc.	52.19	7.38	16.4
WCOM	90.75	50.06	MCI Worldcom Inc.	75.00	5.00	7.7
[illegible]						
ACXM	31.25	18.50	Acxiom Corp.	20.19	1.00	-4.8
ACS	53.00	22.87	Affiliated Computer Servs.	44.00	0.00	0.0
AMSY	86.25	18.25	American Mgt. Systems	27.50	1.19	-4.1
AUD	48.87	31.75	Automatic Data Processing	40.00	0.25	0.8
BSYS	60.87	35.87	Bisys Group Inc.	50.25	0.88	1.8
CATP	41.75	10.62	Cambridge Technology Prtns.	10.00	0.19	1.2
CEN	45.50	34.50	Ceridian	26.19	-1.25	-4.2
CBR	30.00	13.81	Ciber Inc.	19.38	0.38	0.0
CDO	30.87	18.75	Comdisco	23.00	0.44	1.9
CHRZ	33.37	9.75	Computer Horizons Corp.	10.63	0.19	-1.8
CSC	74.87	46.25	Computer Sciences	67.19	2.94	4.6
DST	70.25	34.00	DST Systems Inc.	66.06	-0.31	-0.6
EDS	67.37	38.43	Electronic Data Systems	60.63	0.38	0.7
FDC	50.50	19.06	First Data Group	45.00	5.38	8.1
FISV	60.75	24.62	Fiserv	38.25	1.75	4.1
IT	18.37	17.31	Gartner Group Inc.	21.06	-1.00	-6.7
KEA	34.50	17.25	Keane	27.31	-0.56	-4.5
NDC	55.25	28.19	National Data	38.56	1.94	-4.7
PAYX	67.75	23.38	Paychex Inc.	27.00	0.38	1.4
PER	85.75	18.19	Perot Systems Corp.	21.50	1.06	4.8
RENS	15.00	4.00	Renaissance Worldwide	3.69	0.25	4.6
REY	25.31	17.87	Reynolds & Reynolds	21.38	0.75	0.8
SFE	128.00	17.12	Safeguard Scientifics	94.63	8.19	15.8
SAPE	82.87	24.75	Sapient Corp.	68.63	4.62	7.1
SMS	73.50	18.50	Shared Medical Systems	58.00	1.38	2.4
SDS	41.93	21.88	Sungard Data Systems	29.00	1.06	-0.9
SYNT	24.31	7.00	Syntel Inc.	8.00	-0.69	8.1
TECD	53.12	14.68	Tech Data	40.75	3.81	16.4
TEKF	99.50	25.50	[illegible] Corp. (H)	27.38	-0.08	-0.2
TSS	25.25	14.43	Total System Services Inc.	15.81	-0.19	1.2
TSAI	51.00	18.00	Transaction Sys. Architects	23.75	-3.88	-10.7
[illegible]						
COMS	51.62	20.00	3Com Corp.	26.75	2.31	9.5
ADCT	53.62	18.75	ADC Telecommunications Inc.	35.50	-8.44	-19.2
ANTC	58.43	11.50	Antec (H)	46.19	5.63	10.8
BNYN	18.37	2.12	Banyan Systems Inc.	7.81	0.09	1.2
CS	17.37	6.62	Cabletron Systems	10.13	-1.19	8.5
CNEBF	17.37	3.63	Cam-Net Enterprises	8.12	0.88	12.4
CSCO	70.31	29.56	Cisco Systems Inc. (H)	68.06	6.00	9.5
ECIL	42.00	18.75	ECI Telecom	29.13	1.44	4.7
ENTU	43.06	8.00	Entrust Technologies Inc.	24.75	-3.25	-8.3
HRS	49.62	26.25	Harris Corp. (L)	27.19	-0.81	-2.7
GMH	63.00	80.37	Hughes Electronics/GM	52.19	1.13	2.2

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ERICY	18.29	19.00	LM Ericsson (H)	32.50	0.75	2.0
JNPR	234.37	38.19	Juniper Networks Inc. (H)	221.06	18.94	9.3
LU	18.29	76.00	Lucent Technologies	66.38	3.13	4.9
MADGF	9.18	1.75	Madge Networks	2.50	-0.13	-4.8
NCDI	8.00	4.25	Network Computing Dev.	4.63	0.00	1.0
NWK	69.50	9.00	Network Equipment Tech. (H)	6.06	0.00	0.0
NN	38.00	15.43	Newbridge Networks	27.00	1.00	5.5
NOK	86.37	19.87	Nokia Corp.	85.19	1.56	1.9
NT	43.44	7.31	Northern Telecom Ltd. (L)	43.00	0.50	1.0
PAIR	18.19	6.00	Pairgain Technologies Inc.	9.00	1.19	11.7
PCTL	11.50	4.31	PictureTel	6.50	0.47	8.1
SFA	87.00	8.70	Scientific Atlanta (H)	51.63	5.00	10.1
TLAB	74.06	35.00	Tellabs Inc.	66.00	-2.63	-4.3
USWB	30.06	41.00	USWeb	34.19	1.38	3.5
VRLK	8.19	2.00	[illegible]	3.19	-0.19	-4.4
WSTL	9.18	2.75	Westell Technology Inc.	7.00	-0.31	-3.8
[illegible]						
ADPT	43.87	7.00	Adaptec	37.06	2.38	9.0
AMD	30.00	9.31	Advanced Micro Devices	18.87	1.81	10.1
ALTR	66.87	14.50	Altera	56.00	2.31	6.7
ADI	31.62	12.00	Analog Devices (H)	51.44	5.44	12.0
AMAT	75.86	21.00	Applied Materials	66.44	0.94	1.1
ASML	89.62	12.99	ASM Lithography Holding	84.25	1.75	2.8
HRS	46.87	26.18	Harris Corp. (L)	27.19	0.06	-0.2
INTC	64.18	34.87	Intel Corp. (H)	83.13	4.50	5.7
KLAC	73.38	20.75	KLA Instruments	68.00	2.94	4.6
LLTC	75.75	18.18	Linear Technology	60.94	1.06	-1.7
LSI	18.18	10.56	LSI Logic (H)	60.25	-0.50	1.0
MXIM	79.00	22.31	Maxim Integrated Products	67.06	0.25	0.4
MU	80.56	25.18	Micron Technology	70.19	5.44	8.4
MOT	104.18	58.37	Motorola	94.13	0.19	7.0
NSM	47.00	10.37	National Semiconductor (L)	28.00	-0.88	-3.2
STM	78.62	17.93	SGS-Thomson Microelectronics	75.38	-0.50	-0.7
SLR	76.81	19.87	Solectron Corp. (H)	74.13	2.00	3.0
TER	68.18	18.06	Teradyne	68.94	4.75	7.4
TXN	92.06	27.18	Texas Instruments (H)	81.00	7.00	8.6
UNPH	111.87	19.87	Uniphase (H)	111.38	12.19	12.2
VTSS	88.50	17.12	Vitesse Semiconductor Corp. (H)	80.63	1.56	2.2
XLNX	77.75	14.87	Xilinx (H)	77.31	1.19	1.7
[illegible]						
AAPL	18.00	20.18	Apple Computer Inc. (H)	18.06	5.31	6.1
ASPX	13.31	1.62	Auspex Systems	10.00	-0.94	-8.7
BTOS	10.93	3.87	[illegible]	8.31	0.6	7.4
CPQ	51.25	18.00	Compaq Computer Corp.	24.44	1.00	4.7
DGN	21.18	7.38	Data General	18.81	-1.88	0.0
DELL	18.00	30.37	Dell Computer Corp.	47.94	0.44	0.1
GTW	105.37	18.12	Gateway (H)	89.31	8.00	9.6
HWP	118.43	47.06	Hewlett-Packard Co.	108.06	2.75	2.7
HIT	100.00	60.6	Hitachi Ltd	103.18	4.06	0.0
IBM	139.19	55.31	IBM	129.75	3.00	2.2
[illegible]	24.75	6.38	[illegible]	6.12	0.27	-6.2
[illegible]	108.18	18.37	[illegible] Inc.	60.19	0.13	7.0
NATI	48.25	17.18	National Instruments Corp.	26.67	-10.88	-28.9
NCR	45.75	23.50	NCR	43.75	0.00	0.1
NIPNY	81.75	31.00	NEC	78.18	-0.38	-0.5
PRCM	13.75	3.43	Procom Tech Inc.	8.75	0.06	1.8
SQNT	18.50	5.06	Sequent Computer Systems	18.62	1.19	7.2
SGI	30.87	7.37	Silicon Graphics Inc.	17.00	-0.88	-6.2
SNE	130.62	60.25	Sony Corp. (H)	129.00	-9.19	-4.5
SUNW	77.62	18.18	Sun Microsystems Inc. (H)	77.50	0.88	0.0
TXMI	8.87	2.00	Texas Micro	7.00	0.00	0.0
TRCD	4.00	0.87	Tricord Systems	2.75	-0.25	-8.3
UIS	48.18	17.82	Unisys	45.00	1.75	4.0
[illegible]						
AMZN	221.25	21.75	Amazon.com Inc.	129.75	19.38	17.7
AOL	175.50	12.75	America Online Inc.	100.25	1.62	-0.0
ATHM	99.00	17.75	At Home Corp.	48.19	1.06	7.0
CKFR	68.12	5.75	Checkfree	32.88	5.81	5.0
CYCH	24.87	5.87	Cybercash Inc.	9.87	0.62	-6.4
EGGS	18.87	3.00	Egghead Corp.	10.06	1.37	12.0
EBAY	234.00	8.13	eBay Inc.	125.00	0.50	0.8
ETYS	80.00	20.12	eToys Inc.	41.12	-4.38	-10.1
EGRP	72.25	7.50	E*Trade Group Inc.	25.18	-0.44	-1.7
SEEK	109.00	14.87	Infoseek	31.50	-0.75	-0.8
LCOS	79.00	12.12	Lycos Inc.	67.13	-0.31	-0.1
OMKT	27.00	8.75	Open Market Inc.	12.19	-1.06	-8.0
OTEX	42.50	18.18	Open Text Corp.	24.00	-0.06	-0.3
PCLN	104.00	69.00	Priceline.com Inc.	75.18	7.31	10.0
PRGY	50.62	11.00	Prodigy Communications	21.63	1.00	4.8
PSIX	73.75	8.37	PSINet Inc.	50.44	3.00	6.3
SDTI	60.87	6.43	Security Dynamics	23.06	2.44	17.5
SPYG	32.25	8.62	Spyglass Inc.	12.00	-0.06	-0.5
YHOO	244.00	60.62	Yahoo Inc.	150.00	8.19	5.7
[illegible]						
[illegible]	10.87	1.87	[illegible] Inc.	67.06	2.39	9.0
APCC	27.75	10.12	American Power Conversion	18.19	-2.50	-12.1
CANNY	58.62	17.06	Canon Inc.	29.87	-0.13	-0.8
DBD	28.62	19.12	Diebold Inc.	23.50	0.31	1.3
EK	80.75	60.18	Eastman Kodak Co.	75.13	0.75	1.0
EMC	67.62	29.18	EMC	60.62	1.75	2.9
IOM	40.18	2.63	Iomega	3.50	-0.31	-8.2
MXTR	27.25	4.25	Maxtor Corp.	6.19	-0.00	10.5
LXK	78.75	35.37	Lexmark Internat'l Group Inc. (H)	75.63	0.75	0.8
SEG	44.25	18.12	Seagate Technology	33.00	0.06	1.7
STK	41.62	17.25	Storage Technology	21.25	1.25	6.3
TEK	37.12	12.68	Tektronix (H)	68.38	0.00	1.5
XRX	63.00	60.00	Xerox	50.75	0.38	1.0

KEY: (H) = New annual high reached in period
(L) = New annual low reached in period

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WEEK IN STOCKS

PERCENT		PERCENT	
Transation Network Services (H)	28.3	National Instruments Corp.	-26.9
Ariba Inc. (H)	22.5	ADC Telecommunications Inc.	-13.3
J. D. Edwards & Co.	18.4	American Power Conversion	-12.1
Amazon.com Inc.	17.7	Transaction Sys. Architects	-10.7
Security Dynamics	17.5	Entrust Technologies Inc.	-8.3
Tibco Software Inc.	16.4	Tricord Systems	-8.3
Tech Data	16.4	Iomega	-8.2
Safegard Scientifics	15.8		

DOLLAR		DOLLAR	
Ariba Inc. (H)	29.94	National Instruments Corp.	-10.88
Amazon.com Inc.	19.38	Sony (H)	-6.19
Juniper Networks Inc. (H)	18.94	ADC Telecommunications Inc.	-5.44
Transation Network Services (H)	18.69	Trans. Sys. Arch.	-3.56
Qualcomm Corp.(H)	16.50	Transaction Sys. Architects	-3.56
Uniphase (H)	12.13	Jack Henry Associates	-2.94
Intuit	11.25	American Power Conversion	-2.50
Microsoft Corp.	10.38	Hnc Software	-2.50

Adobe's Stock Price Gets Better With Age

Aggressive plan credited for record stock price

BY STACY COLLETT

SURVIVING IN THE software business for 17 years is no small feat. Just ask San Jose-based Adobe Systems Inc. (Nasdaq:ADBE), which will hit that milestone in November. But having your stock price reach an all-time high almost two decades after your corporate debut — now that's something to celebrate.

INDUSTRY ALMANAC

Adobe's stock set a record high of 105 1/4 last Monday, the second record in a row, after the previous Friday's 99 1/8. For the year, the maker of graphics and video software for print and electronic media rose more than 125% from its starting level of 46 3/4. Revenue rose 11%, to $472.8 million, for the six months that ended June 4, while net income increased 52% to $83.2 million.

Industry watchers credit Adobe's success to an aggressive research-and-development plan that expanded its business from publishing software to video- and Web-development tools as well. Adobe PageMill for Web page designs sold more than 1 million copies in the first half of this year.

"In fiscal 1998, Adobe spent $207.3 million on [research and development]. That was 23% of revenue," said Michael Murphy, editor of "California Technology Stock Letter." Even a bad earnings year in fiscal 1997 didn't stop Adobe from spending $170 million on research and development. "They didn't give a damn what Wall Street thought, and that was the right thing to do ... driving an explosion of new products," he added.

Adobe's purchase of Menlo Park, Calif-based GoLive Systems Inc. in January also helped move the software vendor into the Internet age, analysts said. GoLive software includes a Web application engine that brings together graphics, sound and e-commerce.

Others said Adobe is in the right market at the right time. "Adobe has done a good job of focusing on a market that turned out to have growth potential and good repeat purchasing potential," said Louis Mazzucchelli, an analyst at Gerard Klauer Mattisoo & Co. in New York. "And they've managed to do better than lots of other companies in terms of longevity."

Analyst estimates for the third quarter, which ends Aug 31, began at 60 cents per share earlier this year but have steadily climbed to nearly 75 cents per share. Estimates for the fourth quarter are heading toward 80 cents per share.

EXCH | 52-WEEK RANGE | AUGUST 27 1 PM | WK NET CHANGE | WK PCT CHANGE

SOFTWARE UP 2.7%

TELECOMMUNICATIONS CARRIERS UP 4.1%

SERVICES OFF -0.4%

NETWORK UP 2.6%

SEMICONDUCTORS, CHIPS & EQUIPMENT UP 5.4%

COMPUTER SYSTEMS UP 0.7%

INTERNET UP 5.5%

STORAGE & PERIPHERALS UP 0.8%

KEY **(H)** New annual high reached in period
(L) New annual low reached in period

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Compaq Shuts Down Alpha/NT

and Microsoft Corp. will continue to work on optimizing Windows NT for Compaq's Intel platforms, including forthcoming IA-64-based servers, according to the Compaq spokesman.

In response, a note posted by Microsoft oo its Web site last week (*www.microsoft.com/NTServer/nts/news/msnw/compaq.asp*) said there will be no 32-bit Windows 2000 support oo Alpha. The note also said there won't be any new 32- or 64-bit Alpha releases for SQL Server, Exchange or Back-Office.

Because of the greatly increased scalability offered by Compaq's recently launched eight-way Intel-based ProLiant servers, "Compaq has decided to focus all Windows NT efforts on its Intel-based ProLiant platform," a Compaq spokesman said. "But we will continue to support customers who have deployed 32-bit Windows NT on Alpha for as long as they require."

However, in a draft letter obtained by *Computerworld* that's being prepared for circulation to customers by Compaq, the company recommends that customers take advantage of soon-to-be-introduced trade-in programs and services to aid migration to Windows NT or Windows 2000 on ProLiant servers, or to Tru64 UNIX, OpenVMS or Linux on their AlphaServer systems.

Interestingly, although Compaq has been emphasizing its commitment to OpenVMS every chance it has had, most users still seem skeptical.

Compaq's move came as a complete surprise to at least one user, who until early last week was expecting to take delivery oo Sept. 7 of new NT-based Alpha equipment worth more than $1 million.

"We were planning on converting a huge OpenVMS/Oracle database to Windows NT and SQL Server," said the systems manager at a financial services firm in San Diego, who requested anonymity.

No Headroom

The company, which had placed orders for several of Compaq's DS20 and ES40 servers and for more than 1T byte worth of storage capacity, is now being offered Compaq's recently launched ProLiant eight-way servers as an alternative. However, early indications are that the planned application will take up all available resources on the new servers, leaving little headroom for future growth, the manager said.

"Frankly, it's going to be hard for us to believe what they say" in the future regarding product road maps, the manager said.

For Vic Gallaway, the move was vindication of his company's decision to stick with NT on Intel Corp. processors instead of buying Alpha. "One of the things we kept hearing was that [NT] support for Alpha was going away," said Gallaway, a database administrator at St. Laurent Paper Products Corp. in West Point, Va.

Going forward, Compaq will focus on Tru64 Unix, OpenVMS and Linux as the preferred operating systems on Alpha. "The decision [to drop Windows NT] in no way diminishes our strong partnership with Microsoft or our commitment to Alpha," said Enrico Pesatori, a senior Compaq vice president, in a widely quoted internal memo issued last week to employees to aoounce the decision.

From a purely financial standpoint, Compaq's decision was understandable given that just 2% of the Alpha installed base — estimated at around 500,000 servers and workstations — run NT, said Terry Shannon, editor of "Shannon Knows Compaq," an Ashland, Mass.-based newsletter.

"NT on Alpha wasn't making Compaq any money, ... so somebody decided to draw a line," said David Froble, president of Dave Froble Enterprises Inc. in Vanderbilt, Pa., a developer of OpenVMS software.

Finesse Needed

But the way Compaq handled the news — until late last week the vendor still hadn't issued a formal release announcing its decision — underscores the need for the company to improve communications with its customers, users and analysts said.

"This may not be the last of these type of reversals to happen," said Jeff Killeen, a board member of the Digital Equipment Computer User Society in Hopedale, Mass. "Compaq is going through a lot of internal turmoil right now reorganizing itself," Killeen said. "The best thing Compaq could do for the customer is to get through this restructuring as fast as possible and oot repeat Digital's mistake of endless, constant reorganization," he said.

November 1991: Digital says it wants NT ported to future Alpha architectures
January 1992: Microsoft licenses 32-bit NT to Digital
April 1992: Microsoft and Digital announce an expanded relationship that includes joint porting of NT to 64-bit Alpha
November 1992: At Comdex, Digital shows Alpha desktop systems running NT applications
January 1993: Digital establishes the Windows NT Program Unit, for focused NT engineering and marketing
August 1995: Robert Palmer and Bill Gates announce a strategic alliance that includes $50M to $100M from Microsoft to Digital's support and systems integration businesses
January 1998: Digital announces two new NT/Alpha server architectures and a broadened Alliance for Enterprise Computing agreement; also announces NT-only Alpha servers
August 1999: Compaq drops NT on Alpha

Trade-In Deal Coming for Alpha Users

Users affected by Compaq's decision to drop Windows NT on its Alpha servers will be offered trade-in programs and services to aid migration to Windows NT or Windows 2000 on ProLiant servers.

In the short term, customers can continue to use their existing systems with current applications and will have the option of upgrading to Service Packs 5 and 6 of Windows NT 4.0, according to the contents of an internal document dated Aug. 25 that's being prepared for circulation to customers by Compaq and that was obtained by *Computerworld*.

A Compaq spokesman confirmed that such a letter was "in the works" but offered no further details.

Compaq will continue to support users with current NT-on-Alpha servers at least through the first quarter of 2001 but will recommend that customers take advantage of the trade-in and migration programs after that.

Tru64 Unix and OpenVMS customers who purchased their Alpha servers with the understanding that Compaq would support NT in the future will also be offered trade-ins to ProLiant servers – if they choose to move to Windows NT in the future.

Similar offers will be extended to customers of Compaq's Professional Workstations running Windows NT on Alpha and to customers of Compaq's Raid Array 8000 and Enterprise Storage Array 12000 storage product lines.

– *Jaikumar Vijayan*

GPS Date Rollover Causes Few Problems in U.S.

Satellites not a worry for corporate world

BY PATRICK THIBODEAU
WASHINGTON

For U.S. companies, the Global Positioning System (GPS) date rollover apparently came and went without a hitch. GPS manufacturers called it a "non-event," except in Japan, where thousands of the satellite-based systems used in automobile navigation failed.

The Aug. 21 date rollover had been likened to the year 2000 problem because it affected a diverse user base, from hikers to corporations. GPS satellite data is used to track fleets and provide networks with highly accurate timing information along with precise location data.

Could the relatively few problems experienced with GPS be a good predictor of how companies will fare on the year 2000 problem? In a word: "No," said corporate information technology managers.

"I think it's really different in that it's purely hardware, and there is not that much software involved," said George Brooks, vice president of research and development at J.B. Hunt Transport Inc. in Lowell, Ark.

J. B. Hunt turned off all but two of its GPS receivers to avoid back-end system problems in its 8,500-truck fleet and relied on an alternate system that uses a privately owned GPS-like system.

"I really don't think it's related to the corporate world at all," Elmer Gau, year 2000 program manager at Dunlop Tire Corp. in Buffalo, N.Y., said of the GPS glitch.

The government-run satellite system began counting weeks on Jan. 6, 1980, when the system went live, from zero to 1,023. On Aug. 21, the satellite clocks reset to zero, and they won't reset again for another two decades.

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ABC ABP

FRANK HAYES/FRANKLY SPEAKING

Nothing sacred

THE BANKERS ARE AT IT AGAIN. A few months back, the chuckleheads at the American Bankers Association took to shooting down TV commercials that joked about Y2K and banks. Remember the guy taking Polaroid snapshots of his bank balance at a teller machine as it suddenly grows to millions of dollars? Funny stuff, but it's off the air thanks to the ABA. Now the bankers are sending around a prewritten Y2K sermon they hope ministers, priests and rabbis will deliver from their pulpits over the next few months.

The thoroughly white-bread homily — presumably suitable for either Christian or Jewish preachers, though it was actually written by an ABA speechwriter — compares Y2K to crossing the Red Sea and marching the Chosen People out of Egypt; a little help from the Almighty, and everything will be just fine. Of course, it also takes pains to remind the congregation that "banks will keep your money safe. They're backed by the Federal Deposit Insurance Corp."

That's right — it's bland, canned, nondenominational pseudo-religious pabulum, served up by a trade group and complete with an ad for your local bank. Just when we thought Y2K cynicism and contempt couldn't run any deeper, it breaks through to a whole new subbasement.

An ABA spokesman said the bankers are just "reaching out to the religious community." But the ABA sermon isn't going over big with ministers, who apparently think there are more important things to preach about than Y2K.

The real reason that the ABA thought police are trotting out feel-good propaganda and protecting us from politically incorrect Y2K jokes is, of course, that they fear a run on the banks by millennial zealots, religious and otherwise, who believe it'll all be over when 1999 clicks to 2000.

The bankers seem to suspect that *everyone* has bought into Y2K end-of-the-worldism, and the only hope is to counter the general population's dimwitted simplicity with this lame, don't-dis-the-banks campaign — starting with churchgoers.

Funny thing, though: Long before the bankers decided to write their canned sermon, many churches were already at work on their own Y2K contingency plans, deciding how to swap emergency information and what to do for sick and elderly people if their heat goes out. They were ready for Y2K well before the bankers were.

Maybe those bankers — and politicians and more than a few bleary-eyed IT professionals — would have a little better luck with their own Y2K efforts if they didn't assume most people are hapless, helpless dimbulbs who have to be saved from themselves.

Look, most people know McDonald's coffee is very hot. They know a January blizzard is very cold. And most people — including your business users — have already figured out that things won't be business-as-usual this New Year's.

The American Bankers Association's Y2K 'sermon' is bland, condescending and off-target.

These are the people who will be our last line of defense against Y2K catastrophe. Heck, users have *always* been our last line of defense against system failures. They work around bugs, bottlenecks and downtime right now. They'll be doing that when they come back in January, too.

They're the definitive test bed for technical and procedural fixes, especially in these last few months before the deadline. They know where you can cut corners when the Y2K schedule slips, without poleaxing the business. They're the ones who will make your contingency plans fly or fail. They're your ultimate Y2K partners.

So work with them. Talk with them. Count on them. Give them the credit they deserve, because you need them.

And as for the bankers and their cynical sermonizing — well, with any luck, we'll see the money changers driven out of the temple all over again.

Hayes, Computerworld's staff columnist, has covered IT for 20 years. His e-mail address is frank_hayes@computerworld.com.

SHARK TANK

LIFE IMITATES "DILBERT," says a pilot fish who no longer works for a Certain American software vendor. Setup: Semi-annual manager shuffle puts thoroughly nontechnical "technical director" in charge of several dozen long-term degreed engineers. (How nontechnical? She needs help formatting a Windows 95 floppy.) Atrocity du jour: Customer balks at the price of the vendor's newest 32-bit upgrade; empty suit goes before the entire division to ask if engineers can rewrite the software to not use all 32 bits so they can charge the client less money. Final outcome: 90% turnover in the department before exec walks the plank.

THANKS, BYE BYE! So Novell is launching a plug-in that'll let users of Microsoft Outlook connect to Novell's GroupWise server. One analyst friend of the Tank pointed out that it's a really useful feature – for anyone who wants to pull the plug on GroupWise and migrate to Exchange.

SHAMELESS Y2K GIMMICK NO. 1: Netscape is pushing its own little Y2K-aware logo to add to corporate and personal Web sites. But one pilot fish noticed the logo, which is updated daily to count days until 2000, is off by two days. The little fish tried pointing it out to Moby Netscape, apparently to no avail. Sharky still thinks Netscape will be Y2K ready – by 2002 for sure.

SHAMELESS Y2K GIMMICK NO. 2: Playing off the predicted shortage of champagne this New Year's Eve, Johnnie Walker Blue is pitching itself as the alternative adult beverage of choice ("a bottle or two just might help you solve any number of millennium worries"). Cripes, did you know the stuff costs $160 a bottle? Sorry, Johnnie. Rolling Rock remains the official lubricant of the Shark Tank.

"That was not history," Bill Gates groused last week about the recent TNT movie *Pirates of Silicon Valley*. The movie was about Gates, Jobs, etc., and was just about unwatchable – but it "portrayed Gates as a greedy and manipulative schemer," one report said, so how inaccurate could it be? Sharky vows to get the facts straight – or at least to be reasonably entertaining: **sharky@computerworld.com.**

The 5th Wave

"Well, here's what happened – I forgot to put it on my 'To Do' list."

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[illegible] all over [illegible] important [illegible] support [illegible] mobile computing [illegible] and [illegible] information appliances, wireless [illegible] rication [illegible] companion PC [illegible] Attendees will also get to see on-stage demos and [illegible] ed by some of the industry's [illegible] personalities, including Steve Wildstrom (*Business Week*), Sandy Reed (*InfoWorld*), [illegible] Johnson (*Computerworld*), Bill Howard (*PC Magazine*), Jerry Michalski [illegible] and Chris Barr (CNET).

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